PHOTO-ERA

The American Journal of Photography

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CONTENTS

ILLUSTRATIONS

Portrait ..... *J. H. Garo* 266
Early Morning Mist ..... *Wm. H. Zerbe* 270
My Young Man ..... *Paul R. Morrison* 271
Houses Piled on Houses — Capri ..... *Wendell G. Corthell* 276
Dancing the Tarantella — Capri ..... *Wendell G. Corthell* 276
The Playthings of Past Volcanoes ..... *Wendell G. Corthell* 278
A Capri Walk ..... *Wendell G. Corthell* 278
Capriotes as Freighters ..... *Wendell G. Corthell* 278
Town of Capri ..... *Wendell G. Corthell* 279
Figures 1 and 2, Activity of Uranium Nitrate ..... *George F. Parmenter* 281
Figures 3, 4 and 5, Activity of Uranium Nitrate ..... *George F. Parmenter* 282
A New England Road ..... *William C. Starr* 283
Playmates ..... *R. Dührkoop* 287
Mark Twain ..... *Walter Barnett* 289
The Signal ..... *Charles Tracy* 291
Morning Mists on the River ..... *G. R. Ballance* 292
Bobsleigh Spilling ..... *G. R. Ballance* 294
The Brook in Winter ..... *C. F. Clarke* 295
Figure 1, Varnishing Negatives ..... *Victor Wilson* 296
Figure 2, Varnishing Negatives ..... *Victor Wilson* 297
Winter Evening ..... *Charles G. Hass* 297
Elsie M. ..... *E. E. Doty* 298
First Prize — Waterscapes ..... *D. H. Brookins* 302
Second Prize — Waterscapes ..... *Helen W. Clogston* 303

ARTICLES

How to Color Photographs ..... *B. I. Barrett* 267
The Small Camera as a Pictorial Convenience. Part II.—
Advantages of Selective Enlargement ..... *Wm. F. Zierath, M.D.* 273
What My Camera Did in Capri ..... *Wendell G. Corthell* 277
The Photo-Chemical Activity of Uranium Nitrate ..... *George F. Parmenter, Ph.D* 280
The Oil Pigment Process ..... *E. O. Hoppé* 284
On the Care and Use of Lantern-Slides ..... *F. A. Waugh* 290
How Far to Develop ..... *Phil M. Riley* 293
Varnishing Negatives ..... *Victor Wilson* 296

DEPARTMENTS

EDITORIAL 299
THE ROUND ROBIN GUILD 301
THE CRUCIBLE 307
NOTES AND NEWS 310
WITH THE TRADE 315

J. H. GARO
PORTRAIT
N. E. CONVENTION

PHOTO-ERA
The American Journal of Photography

Vol. XIX. DECEMBER, 1907 No. 6

How to Color Photographs

B. I. BARRETT

AN attempt to explain the various processes and epitomize the underlying principles of the coloring of photographs within the limits of a short article precludes the discussion of anything outside of the bare essentials.

It is not necessary to introduce or advocate this attractive work. Yet it is not out of place to assure the beginner that there is probably no other branch of what may be termed amateur art that so quickly repays honest and painstaking labor with artistic results and not less encouraging financial returns. Omitting the paragraphs usually devoted to the expression of the author's personal feelings and the description of fine things that the amateur may, but probably will not, do quite after the manner of the lilies of the field, we will assume the student to be possessed of artistic taste but without practical experience with the brush and colors.

There are certainly three absolute necessities: suitable subjects for coloring, proper materials and some knowledge of the principles of color. The instructions in this number are intended for work upon platinum paper. They also apply to prints upon sensitized water-color paper, some grades of Velox and other papers that have a good surface that will take the color without previous preparation. The medium or extra rough platinum is the most satisfactory.

Selection of Prints

Experience will soon teach what are the best subjects or prints to color. At first, light prints will give the best results; later, darker subjects and prints will be liked and, as one gains experience, it will be seen that different treatment for the varying qualities of the subject and print will bring more artistic results. The beginner should beware of deep black shadows or pictures without clear high-lights, as well as the "too contrasty" print. At first nothing is worse than an all-gray tone throughout, which affects every color and leads to muddy and discouraging results. With experience, bad prints may be overcome, but it would be wrong to discourage one's self at first with unnecessary difficulties. The next and concluding article will be illustrated, as far as possible, with examples from this magazine. Good subjects for color abound in the May and June numbers

for this year. In the July number, on pages 9, 11 and 15 are excellent examples of dark shadows that are not too dense, and of pictures low in tone but relieved by high-lights that make it possible to obtain rich color-effects. Should the high-lights be lacking, the colorist can add them. If he have a weak, under-exposed or badly-printed photograph, he can add just the bit of light or shadow necessary to improve it. There is no limit to the good work that can be done with the brush in such cases.

Materials

At any art-store boxes of colors may be purchased for twenty-five or fifty cents, with which very pleasing work may be done. These colors resemble Aniline dyes and cannot be depended upon for permanence. Their chief merit is that they enable the amateur to acquire experience in mixing colors and some skill at very little expense. Really artistic effects can be obtained only with the best of materials. The dull gray of the print can be overcome only by pure and true color. The Winsor and Newton water-colors, and some of the most expensive shades, are necessary for satisfactory work. A half-tube of the right and only color to produce the effect, so much admired, may cost more than the whole box mentioned above. It will also do about as much, and a great deal better, work. The following is a good selection. The half-tubes will hold their moisture longer than pans.

Reds.	*Blues.*	*Yellows.*	*Greens.*
Vermilion.	New Blue.	Orange Cadmium.	Emerald.
Rose Madder.	Prussian Blue.	Yellow Ochre.	Hooker's No. 1.
Alizarine Crimson.	Cerulean.	Aureolin.	Viridian.
Light Red.	Antwerp Blue.	Raw Sienna.	

Browns.

Burnt Sienna. Burnt Umber. Sepia.

Payne's Grey. Chinese White.

The ordinary camel's-hair brushes in quills are good, but flat fitch brushes will be found to do much better work. A pointed sable about No. 3 for fine lines, and three flat fitch brushes of different sizes will be sufficient. Unless the photographs are large there will be no need of a brush larger than a half an inch at the ferule, if flat, or the size of a small lead-pencil if those in quills are used. If an easel and palette are dispensed with, the colors may be mixed upon a plate, or individual butter-plates, and the print tacked to a good-sized board, which is heavy enough to be perfectly firm when placed against a table with the lower edge resting in the lap.

Foreword

There are a few simple facts in regard to the distribution, the tone and the proper harmony and contrast of colors, and a few general rules that are of great assistance in their use. Success in coloring photographs depends more upon a knowledge of these first principles than anything else. It would be an impossibility to set these facts all down here; so the only thing to do is to recommend the best handbook for the amateur upon this topic. At any art-store may be

purchased or ordered a little book called "Hints on Sketching from Nature," by N. E. Green. It is published in three parts, at forty cents each, and treats of perspective, composition and color. It is concise, interesting and well illustrated, and would be a valuable aid to any amateur photographer, in many ways. The volume devoted to color will save the amateur many hours of discouraging and unnecessary labor.

It is well to observe good colored photographs, noticing only what colors are used in the sky and distance, the middle distance and foreground. This should teach you that the sky is laid on in flat washes of thin color, the distance and all large spaces in a similar manner, and the foreground is worked out in detail with heavier or thicker color and a drier brush. In practising with cheap colors it is best to do nothing more than wash or tint the picture, leaving the photograph to give all the shading through the transparent color. This is the safest method for the beginner for some time.

The Sky

We will suppose the first attempt to be a landscape. When the actual work begins, the first thing to be considered is the sky. It is well, for the sake of blending the washes, to sponge the print with clear water, removing any extra moisture with a clean blotting-paper. The lower portion of the sky, being much lighter and less blue than it is overhead, will be left as it is or washed with a very thin yellow. For this use Yellow Ochre, very much diluted with water, and the largest and softest brush, carrying the color across from left to right with a firm horizontal stroke, and at the end taking up the extra color on the edges of the wash with the partially dry brush or blending it off with clear water. When this is nearly dry, a wash of Rose Madder will give a very good color, but should not be carried as low toward the horizon as the yellow. It is best to allow the yellow to become quite dry before using the blue, especially if it is at all strong, to prevent any danger of a greenish tint. By turning the print upside down and beginning with light color, adding more blue at the bottom, which will be the top when it is done, we will get the proper gradation of color with very little trouble. The color naturally runs downward and settles more heavily at its lower edge. If the print is dark, Antwerp or Prussian Blue will cover it better than the other blues.

The Distance

The distance is the simplest portion of the picture to handle. As the effect of distance and atmosphere is to soften both color and form, the chief care should be to cover the print, not too heavily, with soft, indefinite touches of gray blue or purple. One should remember that cold colors, grays and blues, have a tendency to recede from the eye; while warm colors, those containing red or orange, come forward, and should be used sparingly except in the foreground. To illustrate this we will say that a blue hill looks farther away than a purple one, whether it actually is or not, because of the warm rose color in the purple. For the same reason rose color is safer to use in the distance than Vermilion, which is a much warmer shade of red. A very little study of nature will open our eyes

WM. H. ZERBE
EARLY MORNING MIST
THIRD AMERICAN PHOTOGRAPHIC SALON

PAUL R. MORRISON MY YOUNG MAN

to what is called atmospheric effect. Some moist, hazy day we will notice that the distant hills are blue, when, in reality, they are as green as the grass at our feet. That green is the "local color" which has no place in its full strength except in the foreground. If the beginner will hold a strip of paper so that it will cover all except the immediate foreground and the extreme distance, he will be able to judge of the difference in color. The middle distance can be treated with somewhat stronger tints. Viridian or Emerald Green toned with Cerulean Blue will give cool, blue greens. It is very easy to say put blue here, purple there, and green elsewhere, and yet give very little information. It makes a great difference what blue or what green. Some colors that are very useful upon white paper are quite as useless over a print. For this reason the list of colors given should be adhered to closely at first. One can safely make Yellow Ochre, Rose Madder and New Blue the main dependence for skies. Streaks of Gamboge, Cadmium

and Vermilion will give brighter sunsets. The gray, blue and purple of your skies can often be used in the distance; Rose Madder with New or Cerulean Blue for a delicate purple; Alizarine Crimson and Payne's Grey for a heavier shade. Antwerp and Cerulean Blue are useful for sunshiny skies and to shade distant greens. A beautiful pearly gray is made by adding equal portions of Yellow Ochre and Rose Madder to a larger quantity of New Blue. Sometimes nearly the same effect is obtained by washing the yellow and pink over the gray print. One should beware of bright red, yellow or green in this portion of the picture.

The Foreground

By the time the foreground is reached the moisture from sponging the print will have nearly or quite disappeared, which is as it should be. The softness of the sky is imitated by thin washes over damp paper. The crisp details of the foreground are worked out with stronger color and a drier brush on dry paper. It will be seen, by examining the colors, that all of the bright warm reds, yellows and greens have been reserved for the foreground. It is now impossible to state with any certainty what colors to use, since there is no limit to the agreeable combinations and no occasion to restrict their use. Having selected the local color, apply a light wash, which must not be stronger than the high-lights are to be. The shadows can be strengthened afterward. The whole method now is to wash the high-lights lightly and then work up the details by means of the shadows. It is a mistake to suppose that because the picture is to be only partially colored, the colors do not need to be strong. Directly the opposite is the case, as the color of the print tends to deaden the colors so that they often need to be much stronger than when working on white paper. This is particularly the case with the foreground. In coloring a photograph you are always working over a surface that already has color, gray or brown usually. The color will not dry out quite the shade you are using, and you have to calculate what effect the photograph will have upon it. As a general rule the reds and blues are dull and gray. They must be used very strong. The yellows are inclined to look green. Adding a little red to give a warmer tone will counteract this. The greens are apt to be a little cold and need to be coaxed into life with warm yellows and browns. Raw Sienna and Burnt Umber are excellent for this. Burnt Umber and Prussian Blue make a green for shadows darker than any in the list. Black should be made by mixing Payne's Grey, Alizarine Crimson and Sepia. Although the use of white is not to be recommended to a beginner, a little in the far distance will make his colors recede beautifully, and one can hardly resist the temptation to add high-lights to a snow-scene. With a sepia print it is best to use the color of the print as a warm undertone for the shadows and to select all tints to harmonize with the print. One should not conclude, because less space is given to this portion of the work, that it is of less importance. On the contrary, there is no place where good or bad work tells so effectually. The foreground should be kept until the last, and upon that expended all the patience and skill.

(To be concluded.)

The Small Camera as a Pictorial Convenience

Part II. — Advantages of Selective Enlargement

WILLIAM F. ZIERATH, M.D.

PICTURES of a size suitable to hang on the walls of a Salon or exhibition are a prime necessity. "Yes," say the large camera enthusiasts, "I agree with you there. That is why I use an 8 x 10 outfit." But small negatives do not necessarily mean small prints. The enlarging-process affords the manipulator of the Kodak the means to present the product of his negatives in any size he desires, and in any medium he chooses, whether it be bromide, platinum, gum or carbon.

The modern pictorial photograph is a mean between the excessively sharp detail-rendered photograph of the past decade and the extreme "fuzzytype" of a later date. Its softness and delicacy of half-tones is in sharp contrast with either of the former, and its power to please far greater. Enlarging from small negatives contributes, in no small degree, to the attainment of soft effects.

And this brings us to the subject of printing-mediums, and at the mere mention of enlarging and enlargements, bromide papers are at once suggested. The variety of grades, surfaces, speeds and possible tones of modern bromide papers, to-day, are so great that, if one wishes, he may confine his printing to this medium and still be able to produce results of the greatest pictorial value and diversity.

My own experience with the use of bromide papers has extended over a long period of time and embraced the use of Monox, Rotograph and Eastman products extensively. Of late years the Eastman papers have been used, almost to the exclusion of the other makes, and, taking them as a type, the peculiar advantages of the various surfaces and qualities will be spoken of.

The secret of success in the use of bromide papers is the adaptation of the paper to the intrinsic qualities of the negative. The effect desired is constantly to be borne in mind. Developing and toning formulæ are so numerous and varied, and the ultimate results so uniform, that the reader will be permitted to select those best adapted to his peculiar wants, rather than taking up space unnecessarily in this article. Certain general principles underlie the use of all of them, and slight modifications do not materially influence the final result.

The limitation of the scale of graduation in bromide papers has been their chief fault, up to recent years, but of late the manufacturers have so modified their emulsion formulæ that that accusation now has little basis in fact. By varying the strength of the exposure-light and the strength of the developer any desired degree of contrast or softness can be obtained. Full exposure and diluted developer tends toward contrast, while short exposure and fresh, strong developer will give us soft effects. This latter modification, too, gives us those delicate, gray platinum tones which no nearly approach the real article that, very often, close inspection is necessary to detect the difference.

Eastman's Platino Bromide is particularly well suited to the attainment of platinum tones. For negatives having an abundance of half-tones it is unexcelled. Personally, its use in the interpretation of nebulous effects has given results that platinum could not in any degree approach. The heavy rough kind is especially desirable, where breadth and distance are the chief artistic points to be emphasized. This paper, when retoned in the ferricyanide-sulphite bath, gives a most pleasing copper-colored brown. In making prints, with the intention of retoning them, particular stress must be laid on the fact that short exposure and full development give finer tones than long exposure and short development. This paper, too, is especially well adapted to staining with the various aniline dyes, as it takes the dye readily and uniformly.

With negatives having broad shadows, and where snap and brilliancy in the print are wanted, Velvet Bromide gives splendid results. Sunset effects, landscape, sea and surf and brightly-lighted snow-pictures are exceptionally well rendered on this brand of paper. The artistic value of most sunset pictures is marred by the lack of any detail in the shadows. The slight sheen of the semi-gloss surface corrects this defect in no small measure. Retoning gives fine results in sepia, blue, green and red chalk, but great care must be exercised to see that the paper is well fixed and washed, otherwise dark spots will appear in the finished print after toning. Washing by hand is the only sure method of eliminating all the hypo. Mist effects are not as well rendered on Velvet Bromide as on the Platino brand. The amount of sheen is not so great as to detract from the artistic qualities of this paper.

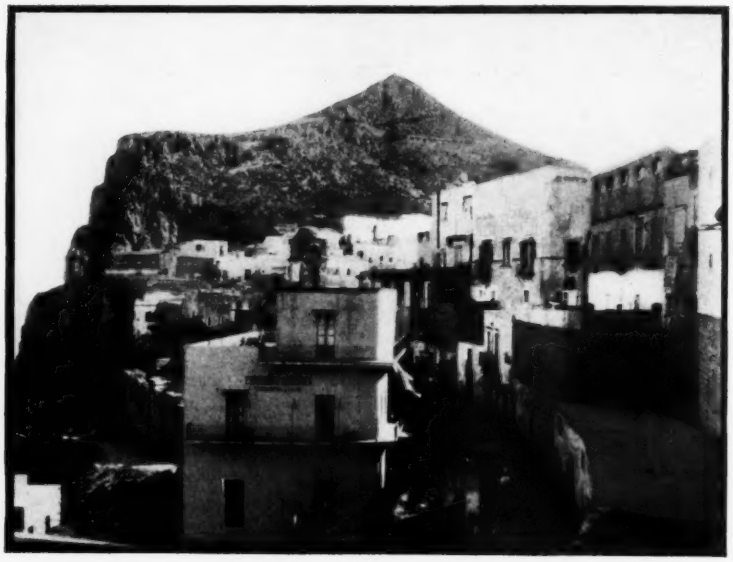
For broad sketchy effects, where it is intended to convey an impression of sunshine and warmth, sepia-toned Royal bromides give results that can be obtained with no other medium, except possibly sepia platinums, and even then, Royal bromides stand the comparison much to their own credit. Richness and elegance are the chief characteristics of this paper. The delicate cream tint of the stock accentuates the sepia effect when this paper is retoned. Often retoning is unnecessary, the warm black of the untoned print harmonizing beautifully with the general theme. For an autumn landscape this is the ideal paper, especially the rough variety. The rich sepia is very suggestive of the brilliant color of the October forest. There is just enough gloss to bring out the detail in the shadows, but not enough to, in any way, detract from its manifold artistic qualities. When prints on this medium are made through bolting-cloth held an inch or two from the paper the effect of breadth and distance is greatly increased. Negatives which will yield only ordinary prints on other mediums will, by the aid of bolting-cloth and Royal bromide, toned sepia, give us results that are, to say the least, surprising. One great fault of bromide and other developing-papers is the slight separation of planes. The perspective is too short. Distance is too sharply rendered. This is due to the fact that the gelatine emulsion with which the paper is coated is exceedingly thin. The rough papers relieve this difficulty in no small measure; and when properly exposed and developed, distance is as well rendered as in a kallitype or platinum print.

In the majority of cases bromide papers will serve every purpose in the making of positives, but there are occasions in which a platinum or a gum, a kallitype or a carbon, will be more suitable. Here an enlarged negative is necessary. One may make a glass contact positive the same size as the film negative, and then make an enlarged glass negative from that. A better plan is to use negative-paper or the thin smooth Eastman's Platino bromide. The paper negative may be made as an enlargement from the small glass positive. These paper negatives permit, in a remarkable degree, the correction of defects in the original negative by the aid of a stump and powdered plumbago. High-lights may be accentuated, clouds put in and undesirable shadows entirely eliminated. Water-colors may also be used. High-lights may be reduced by friction and powdered pumice-stone. Probably the best method of making enlarged paper negatives is to make an enlarged positive on paper, correcting the defects in this as much as possible, and then making a negative on paper by direct contact exposure and again making corrections. The paper negatives may or may not be made transparent by the use of paraffin rubbed on the back and then passing a hot flat-iron over them. When the negative is not rendered transparent printing is somewhat slower, but that is of little consequence.

Enlarged paper negatives can also be made directly from small prints by the copying method, substituting the paper for the ordinary dry-plate in the holder. This, of course, presupposes access to a large camera. Negatives made on the negative-paper yield prints, in platinum or gum, which are the equal of those made from negatives made directly in large-size plate-cameras. In fact, to secure sufficient diffusion it is the habit of many workers to place or move sheets of transparent celluloid between the large glass negatives and the printing-medium.

Another point to be mentioned in the use of the small camera is the advantage of selective enlargement. By that is meant taking only a certain portion of the negative and enlarging it. There is no reason why one should enlarge the whole negative and then trim the print. Select the portion which will present the best composition and then enlarge that. And this brings out another favorable feature of the small camera; namely, as most pictorial photographs made with the small camera are made with the intention of making enlarged positives, it is a good plan to include just a bit more of the scene than is really necessary. Such a procedure on the part of the owner of the large camera would be a waste of dry-plate space, but it is frequently observed, after the print is made, that just a little more foreground or sky would have strengthened the composition very materially. Often, too, one finds that, instead of having a single composition he has the material for two good pictures, the composition of the one overlapping that of the other. In street-work this is especially true, and it is always well to give the main subject the center of the negative, with plenty of room to spare on all sides of it.

Many of our most noted pictorialists use a small camera for a generous share of their work, and, perhaps, the majority of genre studies are productions of the small camera.



WENDELL G. CORTHELL
HOUSES PILED ON HOUSES — CAPRI
DANCING THE TARANTELLA — CAPRI

What My Camera Did In Capri

W. G. CORTHELL

IT did not do anything mean. Oh, no. The shutter did not break or refuse to work; the Goerz lens did not repine because it was not a Plastigmat; the box did not leak light. No; that camera tried its best to partake of my feeling.

It struggled to grasp what my sense was enjoying. It wanted to impress on its tell-tale memory the charm of that fairy island that has for centuries reared aloft its mighty and graceful rocks while the Greek, Roman, Spanish, Italian and modern world reveled in its beauty and kaleidoscopic color.

What I saw and felt was color, atmosphere, never-ending charm of sea and landscape, graceful contour of harbor, ever-smoking Vesuvius, the glorious sun by day and dawn; and my poor camera, my willing servant, tried to catch the spirit of it to carry away in its pocket, but — O greatly hampered toy, it could only record a suggestion of what we had seen.

What secrets that camera and I have to whisper to each other! How proud it is that I introduced it to such beauties of nature; that I turned its face on the marvelous rocks that the mighty volcanic Titans of old turned up here for the joy of coming man; that I allowed it to open its eye to the glory of the evening light; that its lens was invited to gaze upon the wide sweep of sea and shore; that it shared with me the outlook upon near-by Sorrento and far-away Ischia and glorious Naples; that it could look upon, if not retain, the blue of the sea and sky, the gentle, soft light of the coming of evening, and the wondrous rays of the setting sun; that even the picturesque peasant was brought to its absorbing notice; that it could share my gaze upon the brilliancy of the gardens, the moss-green walls of the days of Greece and Rome, the never-ending outdoor theater in the square, and the endless surprises of a unique Southern life.

Ah, that camera of mine saw much, but in its slowness of speech can tell so little! It means well, but, like its master, finds its language halting before the memories of glorious days in far-away Capri.

But there was much we were able to accomplish even in such a land of superlative delights.

The people are not Italian, but Greco-Roman, with, however, all the picturesqueness of the Italian. Much of the carriage of material is on the heads of girls and women. The rich color of nature is freely appropriated by the peasants in their dress, and even the men partake of the spirit of color that is everywhere so manifest. The little horses with bright harnesses, and long pheasant feathers on their heads, are not behind their owners in the love of picturesque show. Even the pleasures of the people are simple and unconsciously theatrical in movement and grace. The laugh and dance are spontaneous. In the piazza or square of the town the church, which all attend, is on one side, while the ever-present café is on the other. After church the crowd quickly descends the broad

THE PLAYTHINGS OF PAST VOLCANOES — A CAPRI WALK

CAPRIOTES AS FREIGHTERS

PHOTOGRAPHS BY WENDELL G. CORTHELL

WENDELL G. CORTHELL TOWN OF CAPRI

steps and at once patronize the café, or press around the Punch and Judy theater, which on Sunday morning is ready set up to catch the spare *centesimi*. The camera may retain impressions of the pretty pergolas, the winding roads and lanes between ancient stone walls, the wonderful gardens which have grown prolific under many warm suns with flowers, cacti, olive-trees, figs, vineyards, oranges and lemons.

It also catches on its film the bald rocks that, like icebergs, rear aloft from out the blue sea; the villas red or white, with many a clinging vine and pretty garden; the fisher-folk and their nets of brown or red, and their boats hauled up on the little beaches.

On every side the life is all so different from the prosaic one we live that there is plenty of work and play for my camera.

And then the wonderful views of island and mainland and far-away Vesuvius, which is never-ending in its variety of smoke and cloud!

But when we come to record the color, the sunsets, the changing sea, not even the painter can do it justice.

The natives never tire of leaning over the parapet at the square and gazing off into the music of the scene. Surely that camera and I shall not soon forget our nine days of delight in beautiful Capri.

The Photo-Chemical Activity of Uranium Nitrate

GEORGE F. PARMENTER, Ph.D.

URANIUM nitrate is one of a number of compounds which the metal uranium forms. It is a chemical well known to photographers and much used by them as an intensifier for plates and films, and also as a toning agent for bromide and the various gaslight papers and lantern-slides.

Uranium itself is found in small deposits sparingly distributed over the earth's surface in the mineral uraninite or pitchblende, and exists principally as the double oxide UO_2. $2UO_3$.

About the year 1896 Becquerel discovered that uranium and its compounds had the property of emitting rays or emanations, and that these rays had the remarkable property of acting on the sensitive surface of the photographic dry-plate. It was soon noticed also that this action of uranium and its compounds was roughly proportional to the amount of the uranium present in them.

In this connection it is interesting to note that about two years later M. and Mme. Curie discovered in some samples of pitchblende an increased radio-activity which could not be accounted for by the amount of uranium present. On further investigation, that remarkable substance radium was discovered in minute quantities. It was found that it had over nine hundred times the photo-chemical action of uranium, and that the small quantity of radium present in the uranium ore gave to it its abnormal activity.

In Fig. 1 is shown a rather remarkable picture of a piece of uranium ore or pitchblende taken by the emanations or rays given off from itself. The piece of ore was placed in the dark-room on a dry-plate, which had previously been wrapped in heavy post-office paper and allowed to remain for forty-eight hours, and then developed as usual. It will be noticed that the picture takes the rough shape of a skull. This is not due to the shape of the ore, but to the accidental irregular deposit in the pitchblende of the uranium oxides and consequently the increased action on the plate by the rays from these concentrated deposits passing through the paper. It will also be noticed that the emanations are projected from the concentrated areas some little way from the ore. A line will also be seen at one side of the picture due to an old fold in the post-office paper.

Uranium nitrate is formed by chemical means from the mineral uraninite or pitchblende, and in this form it is used by the photographer. It may not be generally known to the user of this chemical that it can itself produce pictures in the dark-room, and by rays given off by itself. Fig. 2 shows a picture of uranium nitrate crystals taken by means of their own rays. The rays passed through two sheets of post-office paper during the forty-eight hours that the plate was exposed in the dark-room. In Fig. 3 we have a "uranigraph" of a bottle taken through several thicknesses of post-office paper by means of a weak solution of uranium ni-

F. A. SAUNDERSON

BOSTON CAMERA CLUB EXHIBITION, 1907

SHADY BROOK

F. A. SAUNDERSON

SHADY BROOK

BOSTON CAMERA CLUB EXHIBITION, 1907

FIGURE 1

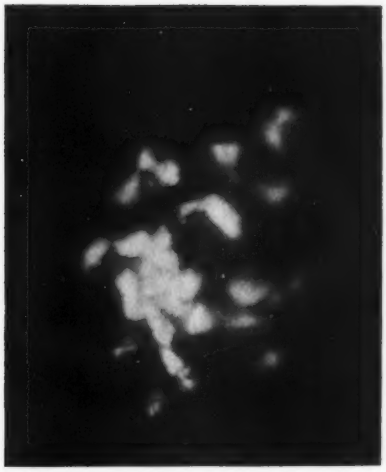


FIGURE 2

trate in the bottle. It was found necessary to use a weak solution, as one more concentrated gave off so many emanations in all directions that a general fog was produced, which destroyed almost entirely the image formed, when the plate was developed. Figs. 4 and 5 were made by placing on a dry-plate, which had been thoroughly enclosed in post-office paper — in one case a silver Swastika charm, and in the other an iron key and a few copper pennies — and both plates exposed to the action of uranium emanations for about ten days, and then developed and fixed as usual.

A positive may be obtained by placing a contrasty negative on a dry-plate and allowing the uranium rays to pass through the negative for a number of days. The positive obtained after developing is very weak and much fogged, due to the fact that the intervening film of silver on the negative is so thin that it retards the rays little more than the clear glass. In fact, the uranium rays are able to pass through some little thickness of metal and still be capable of affecting the photographic plate.

In the negative from which the print of the Swastika charm was made, one can distinctly see the engraving on the charm brought out on the plate by the less thickness of the silver and, consequently, the greater action on the sensitive plate by the uranium rays. The detail is lost, however, in the printing.

Much might be said of these rays which are continually given off by uranium and its compounds — how they may be separated into four different kinds, each with its own properties and affecting the photographic plate each to a different degree; how a sheet of aluminium .005 c. m. thick placed over the plate will re-

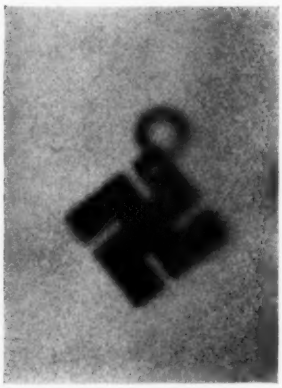


FIGURE 4

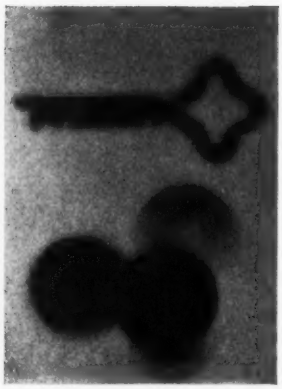


FIGURE 5

FIGURE 3

WM. C. STARR A NEW ENGLAND ROAD

tard one division of the rays one-half, while another requires a sheet .05 c. m. thick to reduce the action one-half, and yet another is still more active, requiring 8 c. m. in thickness of aluminium to reduce the action the same degree. We might also tell how each kind of emanation behaves in a magnetic field, and so on, but all this would doubtless be of very little interest to the average photographer.

We see frequently in the photographic journals the warning to keep hydrochloric acid, turpentine, etc., out of the dark-room on account of the injurious action on the sensitive plate. The only warning in connection with uranium nitrate that we have seen stated has been to keep the bottle tightly corked so that it shall not part with its water of crystallization. From the results of the simple experiments described above it will be seen that this common photographic chemical may produce results in the dark-room little anticipated by the photographer, if he keep the seemingly harmless bottle of uranium nitrate near the dry-plate box.

It was found that if a bottle of the nitrate crystals be placed on a box of plates and allowed to remain for a week or so and then the plates developed there will be an image of the bottom of the bottle clearly outlined on the first plate, and perhaps even on the second. In fact, most of the plates in the box will show a distinct fog. While chemicals are not usually kept on the top of the boxes of plates, yet if the plates are badly fogged through two thicknesses of pasteboard and more or less black paper, in a week or two, one can easily see that a prolonged exposure, even at some little distance, might do the very sensitive dry-plate harm.

The Oil Pigment Process

E. O. HOPPÉ

SINCE *The Amateur Photographer* published, nearly three years ago, the first account of the oil-printing process, revived by Mr. G. E. H. Rawlins, little work has been seen in this medium, either because of apparent difficulties or because its full artistic possibilities were not realized till M. Demachy experimented and exhibited pictures that compared most favorably with the gums for which he is so well known. During the past year he has been busily engaged not merely experimenting, but producing masterpieces that were a delight to all who saw them when he held an exhibition in his Paris studio this spring, or later, when they formed a one-man show in the rooms of the Royal Photographic Society in London during June and July. They were truly things of beauty, and the most important manifestation of pictorial photography which has yet taken place either in France or in England—not merely the most important, but the most beautiful likewise, because revealing most effort, and an art that has finely discarded all that fettered its freedom. This exhibition did more to advance the claims for the oil process and to introduce its possibilities than could have been achieved by any other means.

In this beautiful and plastic process M. Demachy very rapidly discovered and made his own that amount of initiative which had at times been refused him by gum-bichromate, and the freedom and latitude allowed him in oil have been fully utilized in his pictures in producing effects that are altogether delightful to the eye.

This "useful tool, but a sharp-edged one" depends for its effect less upon the pigment at one end of the brush than upon the man at the other, for it is not the application of the ink that produces a good result, but the artistic ability of the operator who applies it; that is, for a direct, straightforward print it is less suitable than carbon or platinotype, but for one in which individuality and personal feeling are to be introduced it is unequaled.

While the lines are those produced by the lens, the tone-values are those of the photographer himself, and it depends entirely upon his perception of the artistic fitness of things to make or mar the effect of his picture, the pliability of the medium being so great that, unless he sees the various tones in their correct value one to another, it will be difficult, if not impossible, for him to reproduce them or to make a successful picture.

When it is remembered that the picture is produced on a gelatinized surface that has been variously acted upon by light and the application of ink in small quantities taken up on a brush, it is readily perceived that to make two touches absolutely identical in their effect upon the paper is an almost impossible feat, while to build up two identical pictures by means of a series of local touches is an utter impossibility. Facsimiles cannot, therefore, be obtained, unless we are prepared to accept as a facsimile the reproduction merely of lines and not of tones.

Several important improvements have been made of late whereby the old process of putting the color-matter on a fixed-out P. O. P.— by means of a roller squeegee—has now given way to an immense variety of papers and pigmenting-material, till almost any surface or color may be employed to obtain a particular effect, and by the use of several lithographic and engraving-inks it has become possible to introduce different methods of treatment into one and the same picture. Since the reviver has put the necessary material upon the market, the process is gaining in favor with the amateur who is turning out prints of technical perfection, but which are so deficient in individual treatment that they might far better have been unmodified prints by any direct process; in fact, oil-prints may be divided into two classes — those by Demachy and those by any one else.

It is advisable to have a clear knowledge of the basis of the process before attempting to consider working-details. This may be briefly summarized by saying that a bichromated gelatine-paper, having been exposed to light under a negative, is rendered insoluble according to the gradations of the negative and, on being immersed in water, the image absorbs moisture according to the light-action and, in consequence, the parts which contain much water repel any greasy matter, and those having little water retain it.

The various final supports used in the double-transfer carbon process, platino-matt bromide-paper from which the silver has been dissolved, or any tough paper of a fairly smooth surface, which the worker may coat for himself, may be used for making the print.

To coat the paper with gelatine the following method is recommended by Dr. Evershed and found by him to give better results than the transfer-papers.

Take six grains of thymol, rub it up in a mortar with thirty to sixty minims of alcohol, add this to twenty ounces of water in a wide-mouthed vessel; then one ounce of Heinrich's or Nelson's gelatine is cut into shreds and put in the alcohol and water; the whole is allowed to stand for an hour or more and is then dissolved by the aid of a water-bath, the temperature of which should not exceed 120° F., as otherwise the gelatine will be ruined. When completely dissolved the mixture should be filtered through a couple of thicknesses of Indian muslin. The paper, after being immersed in warm water to remove air-bells, can then be coated by having some gelatine poured in a pool in the water, and by means of a glass rod spread evenly over the whole surface, at the same time removing any air-bubbles or dust. Allow the paper to dry on a level surface, when it can be cut up, if required, and stored; it will keep indefinitely, the thymol acting as a preservative.

The paper is sensitized as an ordinary carbon-tissue, the strength of the potassium solution being varied according to the density of the negative employed; the weaker the negative the weaker the solution. The best oil-prints are obtained from negatives of delicate gradations and no great density, the deep tones of the print being built up by the repeated application of pigment. The sensitizer should not be alkaline and, if it has been found to become so, it must be rendered

acid by the addition of a few drops of sulphuric acid, and will then keep in good condition for an indefinite time if protected from the action of daylight.

Owing to the rapidity with which the paper prints, it is advisable to expose in the shade and remove the paper just before the detail in the high-lights appears, as would be done with platinum paper, the appearance of which the bichromated print greatly resembles. The print is then washed until all trace of yellowness has disappeared, when pigmenting may be proceeded with immediately; or, what is preferable, it is put away to dry thoroughly in order to harden the gelatine and render it less susceptible to abrasion should any drastic measures subsequently become necessary. It then becomes necessary to resoak the paper for several hours till such time as the picture stands out in relief, the high-lights giving the highest relief, as these parts, having been less acted upon by light, absorb the larger quantities of water and consequently repel the oily pigment when applied.

Upon removing the print from the soaking-water it is put on several thicknesses of wet blotting-paper supported upon a firm, hard surface, such as a piece of plate-glass or the smooth bottom of a developing-dish. The surface-water is then removed from the face of the print, a piece of soft, damp linen being used for the purpose; but care must be taken that the moisture is not removed from the saturated and swollen gelatine, otherwise the pigment will adhere in an even coating.

For the application of the pigment ordinary, flat stencil-brushes of various sizes may be used. Those employed by china-painters and known as "dabbers" are better, but, in any case, it is advisable to use only those that retain the natural terminations of the bristles, for, if they have been cut, the harsh, blunt ends will give a course appearance to the print which is very detrimental to the delicacy of the tender tones. Immediately after use the brushes must be thoroughly cleansed with soap and water only; benzine, petrol or turpentine should not be used.

The pigment, either that specially prepared, process-inks or ordinary oil-colors in a thick consistency, is spread in a thin, even layer upon a piece of glass, and a small quantity taken up on the brush and applied to the damp print. The manner in which this is done has a particular effect upon the pictorial result. A firm, slow dabbing-movement gives a deposit of pigment and a tendency to flatness, while a quick, sudden jerk of the brush onto the paper and off again immediately has the opposite effect by removing the pigment that had already been applied and thus giving contrast.*

Commence pigmenting by lightly dabbing the color-matter over about two inches square, and then hop the brush over this area; the pigment that is in this way removed may be reapplied to another part of the print, building that up and, at the same time, clearing the brush to go on hopping again. Do not attempt to

*We understand that Mr. Rawlins holds the brush vertically and allows it to drop on the print, catching it on the rebound, and in this way goes over the image. A wire holder has just been placed on the market by an English firm, in which the brush can be made fast during this "hopping" process. A slight pressure of the finger on the long wire handle which extends horizontally from the brush raises or lowers the brush very quickly, evenly and effectively.— Ed.

R. DÜHRKOOP

PLAYMATES

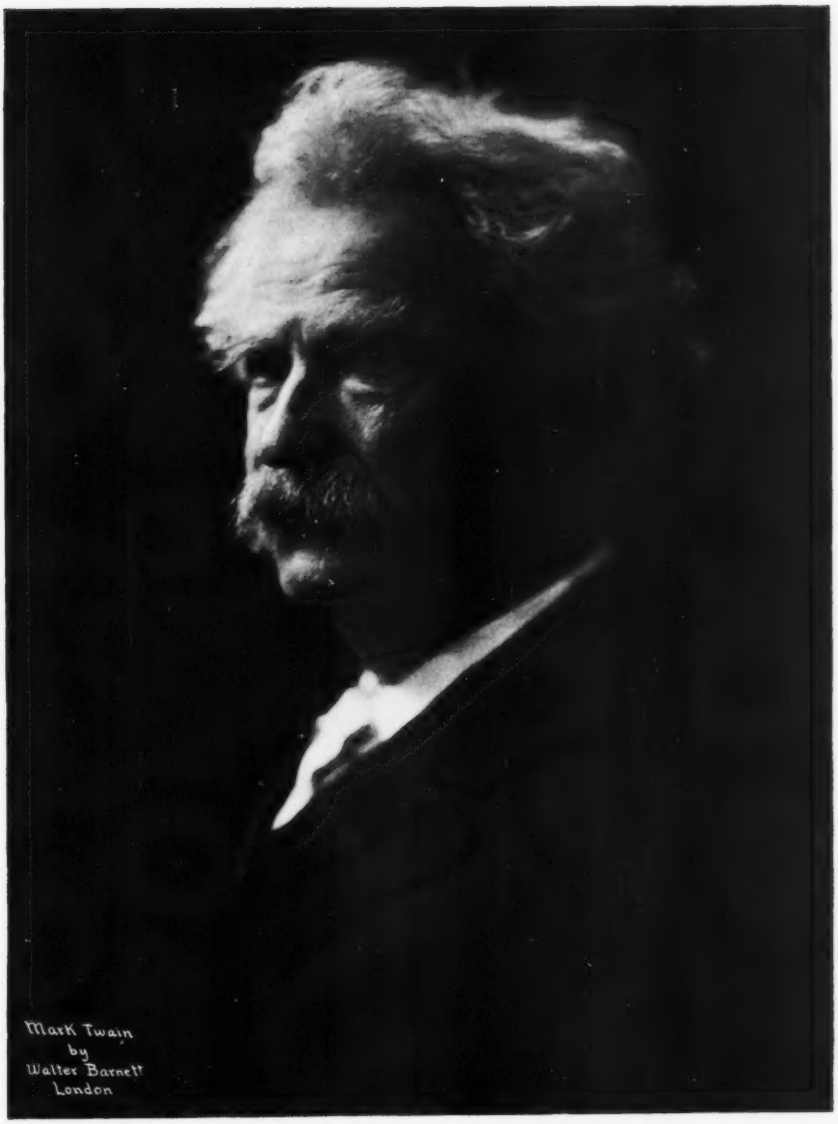
use too much pigment at a time or it will be deposited in lumpy spots that cannot be easily removed. Small applications being repeated will build up the darker tones far better than the removal of pigment will give light ones.

If the picture takes long to complete, it may be necessary to moisten the blotting-paper, or even the print itself, which may be done by placing it in water for a few minutes, when it may be worked on again immediately after the surface-water has been removed. Should it be impossible to complete the picture straight off, it may be dried and finished on another occasion; but in that case it is possible only to build up from the tones already existing, lighter ones than those obtained with the first coating not being possible. The whole can, however, be removed with petrol if once dried; but be sure to have the petrol entirely removed by washing from the paper, otherwise the result will have a dead, sunken-in appearance. Freshly applied pigment may be removed by gently rubbing with a damp cloth, and the whole pigmenting-process commenced anew.

The tabulated failures with the oil-process, together with the causes and remedies, were summarized in the *Photographic News* and may prove of assistance, so are appended in full.

FAILURES WITH THE OIL PROCESS

The Fault.	The Cause.	The Remedy.
1. Pigment refuses to adhere....	(*a*) Underprinted image	(*a*) Print deeper.
	(*b*) Too stiff a pigment	(*b*) Thin pigment with megilp
	(*c*) Too rapid a brush-action	(*c*) Obvious.
2. The pigment, after first adhering, comes away in small, irregular spots	(*a*) Too rapid and uneven a brush-action	(*a*) Obvious.
	(*b*) The gelatine has blistered	(*b*) Burn the print.
	(*c*) Some foreign body on brush.....	(*c*) Clean the brush.
	(*d*) Some defect in the gelatine coating..	(*d*) Generally met with in papers not specially prepared for the process. Use different.
3. The pigment adheres all over, both high-lights and shadows	(*a*) Printing on the non-gelatine surface.	(*a*) Obvious.
	(*b*) Unsuitable negative; viz., too thin...	(*b*) Intensify the negative.
	(*c*) Washing-water too hard	(*c*) Boil the water and allow to cool.
	(*d*) Overprinted image	(*d*) Do not print so deeply.
	(*e*) Insufficient soaking.....	(*e*) Soak two or three times as long, up to six hours.
	(*f*) Too thin a pigment	(*f*) Spread a thin film out, and allow the excipient to evaporate.
	(*g*) Brush too heavily charged with pigment	(*g*) Obvious.
	(*h*) Brush-action too slow	(*h*) Obvious.
	(*k*) Deterioration of gelatine, due to (i) too long a soaking, (ii) the use of hot water or (iii) formation of bacteria .	(*k*) (i) Throw print away; (ii) ditto; (iii) ditto.
	(*l*) Drying of print whilst pigmenting ..	(*l*) Re-soak or re-damp blotting-paper pad.
4. Circular spots refusing to take pigment.....	(*a*) Formation of air-bells in sensitizing-bath	(*a*) Brush paper while in bath
	(*b*) The brush has picked up some moisture	(*b*) Press brush on clean, dry blotting-paper, and press another piece on the spots.
5. Circular spots taking pigment more freely than other parts of image	(*a*) Formation of air-bells between surface of gelatine and water while soaking	(*a*) Turn prints two or three times over and remove air-bells when first put into water.
	(*b*) Puncturing of gelatine	(*b*) Destroy print.
6. Pigment adheres in streaks ...	Unskilful sensitizing with brush	Sensitize in future by immersion.
7. Pigment is deposited as if "peppered" on to the image	Brush has become clogged	Clean brush by rubbing on a piece of clean, old P. O. P or bromide-paper.
8. Pigment deposited in irregular areas after soaking during pigmenting	Print has not been put into the water face downward and all the imprisoned air between the surface of the print and water displaced	Obvious.
9. Image pigments up as a negative instead of a positive ...	Unknown	Continue pigmenting, and the reversal may disappear.



WALTER BARNETT
MARK TWAIN

On the Care and Use of Lantern-slides

F. A. WAUGH

IT is surprising how generally lantern-slides are used. Almost every teacher in every department of college and university work depends on them more or less. Some departments of instruction maintain collections of slides reaching far into the thousands. Preachers, lecturers and advertisers collect and use great numbers of slides. Let a man once get in the habit of making or of using lantern-slides, and he may be relied on to use more and more of them with each succeeding year.

Soon thereafter comes up the question of preserving so many slides. How shall they be classified and made easily available? In partial answer to these questions I will give an account of what we are trying to do in the Department of Horticulture and Landscapes Gardening at the Massachusetts Agricultural College. In our work we use large numbers of slides, and are constantly adding more. It is, therefore, altogether essential that we should have some systematic method of dealing with them.

The librarian's methods naturally suggest themselves first of all. The librarians have certainly worked out the best modern systems for handling all kinds of facts and many kinds of materials, as is shown by the adoption of the card-catalog methods into nearly every line of business. It does not require any special flight of inventive genius, therefore, to conceive that lantern-slides might be stored somewhere in numbered compartments and found, when needed, by referring to a card catalog.

The next thing to be done is to find a suitable storage for the slides themselves. Formerly we used wooden boxes for this purpose. Such boxes can be bought of the dealers at seventy-five cents to $1.00 each; but as we were using them in quantity we went to the box-factory and had a lot made up, costing us twenty-one cents each. We had a certain system in the use of these box receptacles, but as it has been abandoned I will not discuss it further.

Having the card-catalog system with its convenient drawers before us, we were not long in deciding that the slides themselves could be most conveniently kept in that sort of depot. The trouble is that a slide is three and one-quarter inches wide, while the standard card-drawer is only three inches deep. However, we soon found an accommodating dealer who suggested that he could reset the bottoms in the drawers so as to gain the required quarter inch. This he did, and we were able to go ahead once more on the universal unit system.

The ordinary unit holds eighteen drawers. Each drawer is either thirteen or seventeen inches long. We chose the shorter. Such a drawer will hold sixty to seventy slides.

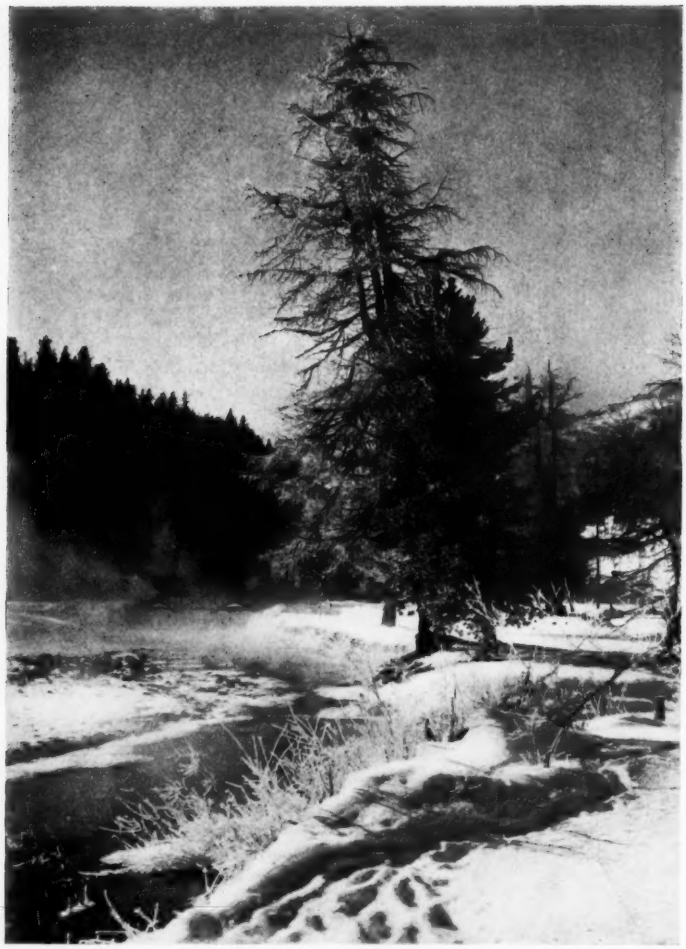
We come now to the next step — and this possibly has an air of originality about it. This consists in combining the card-catalog with the slide-storage drawer. To do this we had a special card made. In fact, each card is a sort of

CHARLES TRACY THE SIGNAL

folder or envelope, into which the slide drops. On the front of each folder is printed a blank outline, on which the necessary data is written. This becomes, therefore, an ordinary card catalog, but each card is directly accompanied by the slide to which it refers.

These cards may then be arranged alphabetically, by series, by subjects, with intermediate guides, or in any other way most convenient for the purposes in hand. Ours are grouped first by subjects, as pruning, grafting, carnations, parks, native trees, market-gardening, greenhouse construction, etc., etc. Any of these general topics may have many subdivisions, marked by intermediate guides. Within these latter groups the slides would also, of course, be arranged alphabetically.

One of the prime conveniences of this system remains to be mentioned. It will be seen that all the important information regarding any slide is noted on the card. When the lecturer runs through the cabinet and selects twenty-five to fifty slides for a given occasion he lifts out slides, cards and all. Having determined on the order in which the slides are to be shown, he puts them into the box of the man who operates the lantern, retaining in his own hand the data slips. These being arranged in the same order as the slides in the box, the lecturer has absolute control of his illustrative material from start to finish. He can always know what the next slide is to be, and can make his talk lead up to it.



G. R. BALLANCE MORNING MISTS ON THE RIVER

So when any picture is thrown on the screen he has all the necessary data concerning it. If his audience is inquisitive he has the means of answering any awkward questions.

At the end of the lecture the slides are returned to the proper folders — this work being facilitated by placing corresponding numbers on slides and folders — and the folders and slides are then redistributed to their proper places in the catalog drawers.

How Far to Develop

PHIL M. RILEY

TO the majority of amateur photographers when to stop development is one of the most hazy points in all photographic processes, and over-development the most common fault. Of course the methods of factorial and stand development, now so popular, obviate all this uncertainty and error, depending, as they do, upon a known and suitable formula which at a proper temperature will develop a perfect negative from a plate of a certain brand that has been correctly exposed.

Personally, I have always been a firm advocate of both these modern methods; and when using double-coated plates, they are, necessarily, the only way; but in most ordinary work with single-coated plates development need be but a mechanical process.

Exposure is the all-important thing, and both stand and factorial development are advisable if for no reason other than that they cause a photographer to give more heed to what he is doing with bulb and shutter. This he must give attention to if he would have satisfactory results. Modifications of the developer are not readily effected when these methods are employed, nor are they necessary, for normal development is all that can be desired with a correctly-timed plate. Exposure is the most important and least understood subject in all photographic work, and a more complete knowledge of it by photographers in general would, I venture to say, appreciably decrease the constant waste of plates and films. The fact of the matter is that would-be photographers are not observing enough, nor are they willing to devote time enough to the subject and get a clear understanding of the principles underlying it.

Every amateur photographer, it seems to me, should at the outset, for the sake of his pocketbook, and to raise the average standard of his work, study this important matter systematically. Good judgment based upon experience must ever be the final criterion, but several authoritative books have been written on the subject, and there are exposure-tables and meters, all of which give one a basis to work upon. From this point keen observation, and the tabulation and comparison of results, must be the guide. A fair knowledge of exposure is more easily attained than one might suppose, but the mental satisfaction of power in that knowledge is worth the effort.

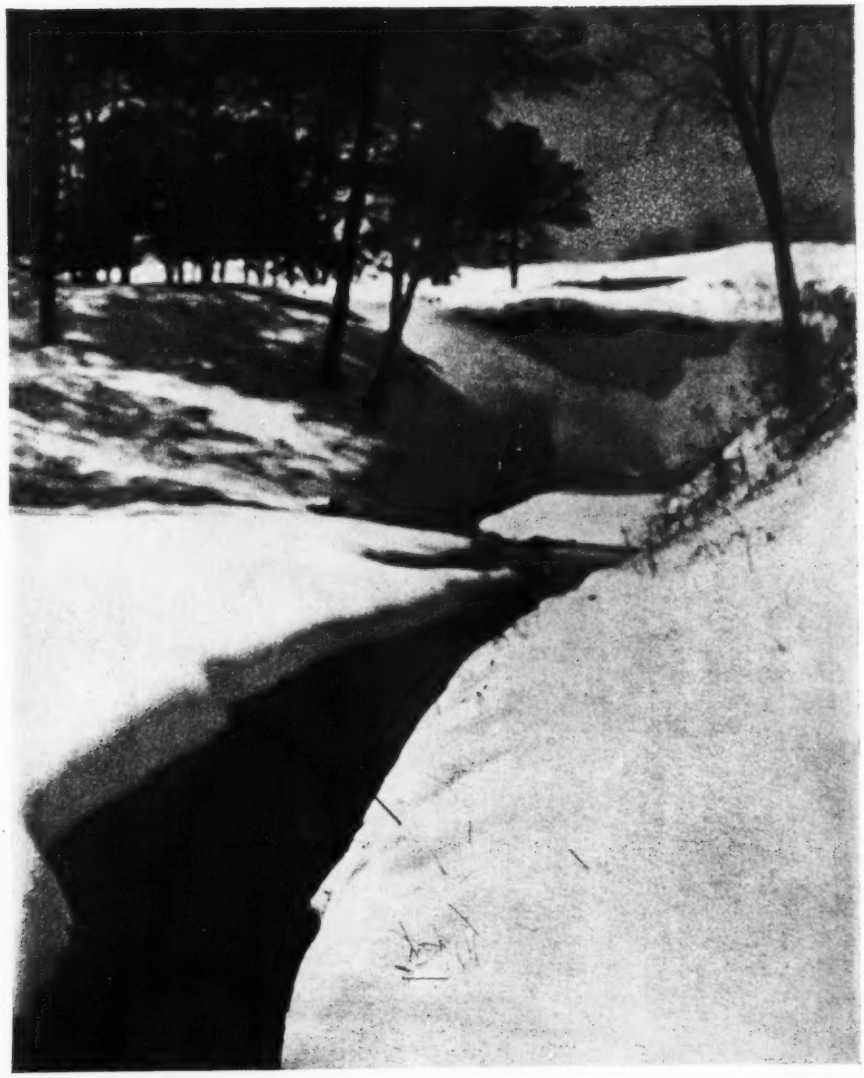
But to return to the subject of development. There are occasional circumstances under which the older method of tentative development has its advantages, such, for instance, as a case of known and perhaps unavoidable incorrect exposure necessitating modifications in the developer, or there may be other causes requiring local treatment. Then there are those persons who practise photography for the love of it, who enjoy every step and delight to watch the image appear in the dim light of the dark-room. In any case the duration of development is important, and the error, if any, is usually on the side of over-

G. R. BALLANCE — BOBSLEIGH SPILLING

development. It is such a temptation to let the plate remain half a minute or so longer to make sure of enough detail or density.

That old maxim, "Expose for the shadows and let the high-lights take care of themselves," has been quoted by the old-stager to the tyro since the early days of photography; but its running-mate, "Develop for the high-lights and let the shadows take care of themselves," is not so often heard. Both are true as gospel, however, and should be followed absolutely. Many amateurs think they are carrying out this latter maxim to the letter, but they are getting negatives with high-lights and middle-tones all in one, and no gradation to connect them with the shadows harmoniously.

For convenience in speaking we may divide the high-lights of the latent image to be developed into three degrees of intensity, which we will speak of as A, B and C. After flowing on the solution we continue development until high-light A, that of greatest intensity, has passed through the emulsion and has come down to the glass so that it may be seen on the back of the plate. Here we should stop if we are developing for the high-lights. You may say at this point that you want more contrast and prefer to carry the operation farther. You get increased contrast between the tones of gradation in this way, but at the same time a reduced number of tones; in other words, high-light B has been brought down to the glass with high-light A without increasing the strength of A a whit. It was



C. F. CLARKE
THE BROOK IN WINTER

already on the glass, and beyond that it cannot go. In the same manner high-light C might be brought down with A and B; and if development were prolonged, the middle-tones would gradually join the high-lights on the glass, all the time causing no increase of intensity in the high-lights brought down to the glass, but constantly increasing the steepness of gradation and reducing the number of tones.

Should it happen that as a result of the particular developing-formula used, you desire, in subsequent work, more contrast than it produces, compound a new solution and reduce the quantity of sodium sulphite, but do not carry development any farther. This modification increases the color of the negative, and by controlling its color one can secure almost any degree of vigor desired in the finished print without such a sacrifice of the tones of gradation.

Some reader may try developing for the first high-light only, and condemn the method because the resulting negatives are somewhat thin, but before rendering a final decision they should be printed from — it may afford a pleasant surprise.

Varnishing Negatives

VICTOR WILSON

OFTEN, when printing, spots will appear on the film which are metallic stains and are due to damp.

This will not occur with varnished negatives. When a negative gets cracked, the film generally gets broken; while, on the contrary, with a varnished film it can be floated off and put on a fresh piece of glass. Films likewise can easily be varnished.

Film.— Films need only be dipped in any one of the following solutions: —

No. 1.— Gum dammar, fifty grains; benzole, one ounce. This should be filtered and kept in a stoppered bottle.

No. 2.— Mastic gum, fifty grains; ether, four ounces.

Take the film and carefully dust it with a piece of plush or a tuft of absorbent cotton. Apply the varnish with a flat camel's-hair brush, or immerse the film in the varnish and drain it back into the bottle as shown in Fig. 1. Pin up by one corner to the edge of a shelf to dry. This will take half an hour.

FIGURE 1

Glass Negatives. Hot Method.— The operation connected with varnishing glass negatives is rather more toilsome, requiring a little patience and care. My method and the hot varnish I use are as follows: —

Varnish Solution.— Bleached shellac, one and one-quarter ounces; mastic, one-quarter ounce; turps, one-quarter ounce; sandarac, one and one-half ounces; alcohol, twenty ounces.

Procure the following articles: a fairly wide-mouth, glass-stoppered bottle, some filter-papers, and a glass funnel five inches wide. First wash your negative to free it from dust and dirt. When quite dry, place it in front of a fire in a negative-rack until it is just so hot that you can bear it on the back of your hand. Now hold it with a plate-holder, and pour on to the center of the film of the negative a large pool of varnish. Let it spread out until it has made as large a pool as it can. Then gently tilt the plate so that the varnish can run from one side to the other, taking care not to let it run over the sides. Leave one corner bare. When all else is covered, place it in the funnel, as shown in Fig. 2, with a filter-paper inside the glass funnel. When it has quite finished draining, pour back the varnish into the stock bottle, remove the plate and place it on a stove to dry, or else on blotting-paper over the mantelpiece.

FIGURE 2

Cold Method.— This method is exactly the same except the warming and drying. Dry only on the blotting-paper. Use the following solution: sandarac, one-half ounce; chloroform, three ounces.

To Remove Varnish.— If it is required to remove the varnish from the negative, first soak the negative for ten minutes in methylated spirits, and then rub the surface gently with a tuft of absorbent cotton dipped in the spirits.

The following are varnishes I have used with more or less success: —

With Heated Negatives.— Celluloid, ten grains; amyl acetate, two ounces.

Another: Orange shellac, two and one-half ounces; turpentine, one-quarter ounce; alcohol or methylated spirits, one pint.

Another: Dammar, three ounces; benzole, three drams; alcohol, ten ounces; oil of lavender, two drams.

Cold Varnishes.— Sandarac, one ounce; chloroform, six ounces.

Another: White hard varnish, *plus* just enough strong ammonia added to yield a clear solution.— *The Practical Photographer, No. 4.*

CHARLES G. HASS WINTER EVENING

E. E. DOTY
ELSIE M.
GRAND PORTRAIT PRIZE, N. E. CONVENTION

EDITORIAL

Photography in Natural Colors

THE excitement produced by the results of Lumière's Autochrome plates has yet to run its course in the United States, as it has in England, where more has thus far been made of the invention than in any other part of the world. This is obviously due to the close proximity of a large and enthusiastic photographic fraternity to the land of the great photographic chemists. The interest which English workers have shown in the development of color-photography has culminated in the formation of an organization known as The Society of Color-Photographers, which is already distinguishing itself by its enthusiastic activity in various ways, especially by the brilliant success of its first annual exhibition, recently held in London. Eminent English pictorialists have vied with each other in demonstrating to their respective admirers the chromatic possibilities of the year's sensation. Thus some highly creditable successes have been scored in the interests of photography in colors, which have been chronicled with all the scintillating rhetoric of which our English cotemporaries are capable. All the while a group of American Photo-Secessionists — Stieglitz, Steichen and Eugene — gifted with an ardor equaled only by their sagacity, were in Paris, quietly experimenting with Lumière plates. The results of these trials were exhibited, recently, to members of the press in the Little Galleries, where they elicited expressions of delight from professional critics and photographers, alike, including Pirie MacDonald, whose glowing tribute was printed in the November PHOTO-ERA. Even M. Antoine Lumière, who was in New York recently, on business connected with his firm, was agreeably surprised, and is said to have pronounced the results on view superior to those produced in the factory at Lyons. It is almost needless to say that success with Autochrome plates is assured only to photographers of uncommon technical skill. A perusal of the *modus operandi*, as fully described in the photographic press — *vide* also PHOTO-ERA for November — will attest the truth of this assertion. When ultimately these plates shall be available in the American market, they will be purchased with avidity by enthusiastic camerists, all along the line; but, unless the makers' directions are followed scrupulously, failure is certain. The new Warner-Powrie system of color-photography, a description of which appears in "The Crucible" of this issue, appears to be less complicated, and eliminates the reversal of the image, thereby greatly simplifying the process. The dominant feature of this new method, however, is that negatives in complementary colors are made direct by one exposure in the ordinary camera on one plate, as in the Lumière process, and that from these negatives an unrestricted number of positives in the true colors of nature may be printed on either glass or paper. This latter feature constitutes an advance in color-photography which is of the greatest importance.

As It Looks from a Distance

UNDER the above caption our esteemed cotemporary, *Camera Craft*, gives expression to a feeling of satisfaction warranted by the statement in *Photography*, of London, that, excepting *Camera Work*, *Camera Craft* is the most notable American photographic magazine. While felicitating Brother Clute on the distinction accorded him by Brother Bayley, we make bold to invite the attention of both gentlemen to the illuminating fact that a current European annual recognizes only two American monthlies; to wit, *Camera Work* and PHOTO-ERA. Congratulations are in order.

Unsafe Counselors

IT is generally admitted that the English photographic journals, individually and as a class, have much that is admirable. That some of them are bigoted to the point of inaccuracy has been pointed out by several observing American journals. But we are pained to find that at least two of our erudite English cotemporaries are guilty of occasionally imparting information that is far from being correct. Some of these statements, made editorially and in all seriousness, border on the ridiculous, showing that their authors are not well grounded in the knowledge accredited to them. It certainly is not too much to expect that the chief editor of an eminent English weekly, and pictorialist of high rank, shall be familiar with the working-principles of a lens and with dark-room operations.

Here one of these recognized authorities declares that one of the reasons for avoiding the use of a wide-angle lens is its *unequal illumination;* for, he further asserts, *not only does much less light reach the plate, towards its edges, but less of the little that does reach it can be used, in consequence of reflection.* This is, indeed, news to us, and, especially, to such distinguished opticians as Ross, Dallmeyer, Goerz, Voigtlaender, Zeiss and Darlot, whose wide-angle lenses, if intelligently employed, will not fail to distribute the light equally over the entire plate.

Another sapient editor advises that in developing a plate it is well to guard against air-bubbles, which can be dispersed *by running a finger — a clean one — over the whole surface of the plate!* We respectfully ask him how it is possible to ensure a finger being absolutely clean during dark-room operations? Did he ever hear of the use of a clean camel's-hair brush passed over the plate during the first stage of development? This safe and simple dodge has been practised in the United States during the past thirty years! A finger, indeed!

The Last Call

THE few remaining days of our annual print-competition will be lively ones for the belated contributors, as well as for us. Incidentally, it is suggested that haste, as well as carelessness in packing prints makes waste. To prevent damage in transit, prints should first be wrapped in soft paper, and then placed between pieces of corrugated board — the kind which is covered on both sides — larger than the prints and *with the corrugations running in opposite directions.*

THE ROUND ROBIN GUILD

Conducted by ELIZABETH FLINT WADE

A department especially designed for the amateur photographer and the beginner, in which information, advice and criticism will be freely given. Membership may be obtained by sending name and address to PHOTO-ERA, The Round Robin Guild, 383 Boylston Street, Boston, Mass.

"The mill-wheel 's frozen in the stream,
The church is decked with holly,
Mistletoe hangs from the kitchen beam,
To frighten away melancholy.
Icicles clink in the milkmaid's pail,
Youngsters skate on the pool below,
Sparrows perch on the garden rail,
And hark! how the cold winds blow!"

Winter has really come, and the once green and happy world is hidden away beneath the snow. Some there are who welcome winter, and some there are who shiver at its approach and long to flee away to a land where sunshine and song and flowers and birds make glad the time.

Why can we not all feel as did the little English boy of whom Oliver Wendell Holmes writes. It seems that this little boy carried tablets about with him on which, as occasion demanded or inspired, he recorded his thoughts and feelings. Dr. Holmes pauses long enough to regret that he did not have tablets to write on when he was a boy. He then continues the tale.

This little lad was also a cheerful lad, easily pleased and always satisfied with the present moment and its pleasures. In the spring, when he was sporting in the fields, everything seemed so delightful that he took the tablets from his pocket and wrote on them:

"Oh, that it were always Spring!"

When the glorious summer arrived with its joys it impressed him as too beautiful to change, so he wrote:

"Oh, that it were always Summer!"

The autumn took quite as strong a hold on his mind, and he wished that this season might always continue; and then when the winter came, with frosts and snow and ice, it was to him so intensely enjoyable that, forgetting the three seasons which in turn gave him joy, he pulled out his tablets for the fourth time and wrote on them:

"Oh, that it were always Winter!"

Holmes said that he got a healthy optimism out of that story which lasted him all his life. So let us, too, profit by the story and be glad for each season in its turn; and for all that befalls, let us with a cheerful mind make the best of it.

We do not feel that winter is really here until after the Christmas holidays have past — the holidays for which young and old are preparing gifts for those they love, besides extending the Christmas giving beyond these contracted borders and remembering those whom fate and fortune have used roughly.

The Guild plans to give each year hints and suggestions to its workers as to the use of pictures in making these friendly remembrances.

In making these suggestions for Christmas gifts, the editor is fully aware of the fact that Christmas is only a little more than three weeks away, but the Guild members, while in a class by themselves, possess many of the attributes of the ordinary mortal. It is, therefore, safe to say that many of them are at this very moment halting between not only two but half a dozen opinions as to what will be appropriate gifts for certain friends.

The camera solves many problems, answers many vexed questions, and it can answer well and quickly the annual Christmas query, "What can I give to ——— that will be liked and enjoyed?"

The answers to this question at this hour will be suggestions for articles that can be made quickly and easily. Some of the work can be done in the evening; some will require a day of sunshine. Amateurs at this time of year take for their motto the proverb "Make hay while the sun shines," substituting the word *pictures* for hay, and devote the sunny day, which comes only semi-occasionally at this time of year, to the making of prints.

All the work of finishing the gifts here described may be done in the evening, a day or two of sunshine being all that is necessary for quite a bit of printing — enough, in fact, to make a number of gifts.

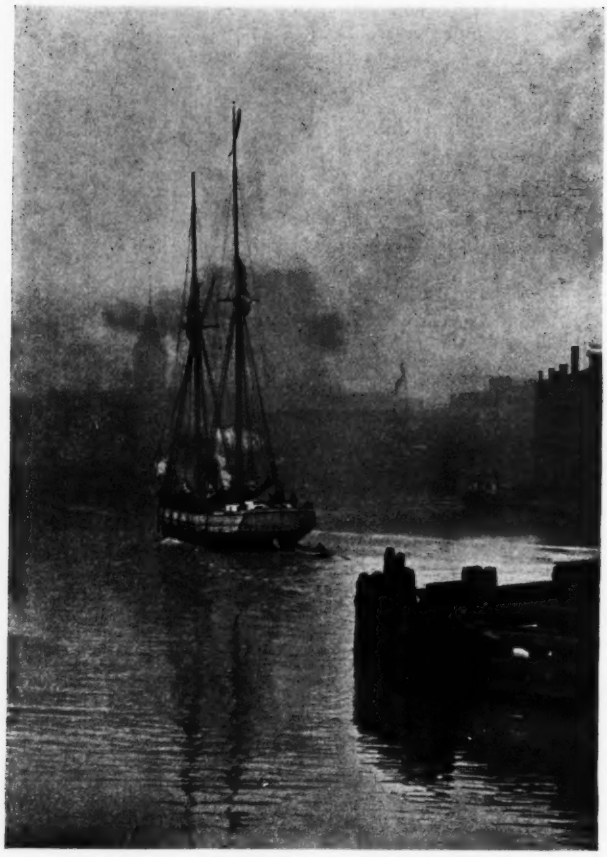
MINIATURES

A WELL-PAINTED miniature is a real pleasure to behold, but the poorly-painted ones — and their number is daily and hourly on the increase — should be levitated off the face of the earth. A good photograph is not only more satisfactory, but far more artistic.

Miniatures of children are specially attractive and, if one has a fine negative of a child's head, a print made from it on celluloid and toned a warm sepia will, when properly mounted, have the appearance of a monochrome done on old ivory. It is to be set in a miniature-frame which is fitted with an imported convex glass. This gives a softness and brilliancy to the picture unattainable by any other means. The baby's picture printed in this way and set in this sort of frame would be a charming gift for the doting parents and grandparents.

A paper print will be almost transformed in appearance and finish by mounting in this way behind the convex glass, and while not as pleasing in color as the sepia on the celluloid, if one cannot compass this process the paper print will be very satisfactory.

FIRST
PRIZE
WATERSCAPES



D. H. BROOKINS — FROM THE BRIDGE AT TWILIGHT

A "JAPANESEY" LANTERN

GIVEN four empty 5 x 8 plate-boxes, a few sheets of Japanese tissue-paper, a bottle of plain silver sensitizing-solution, a few sketchy negatives and a roll of passe-partout binding, what would you make of them?

An ingenious and skilful amateur evolved out of such materials as pretty and decorative a lantern as one would find on a day's journey.

The way he did it was this.

First, he sensitized the Japanese tissue-paper with the silver solution made after the formula given in a recent number of PHOTO-ERA.

Second, he selected four 5 x 8 negatives of the kind which suggest form in the objects pictured rather than give detail. These pictures were landscapes — figures not being exactly suited to the effect he had in mind — and, of course, the pictures were panels taken the long way of the plate. He made the prints somewhat deeper than if they were to be mounted, as they were to have the effect of transparencies.

Third, he marked an opening in each box, leaving just enough of the pasteboard to make a three-quarter-inch frame all around. The lines were gauged with a square so as to be exact in width, the pasteboard cut through with a very sharp knife and all roughness of the edges smoothed away with a bit of emery-paper. These were the panels of the lanterns, the frames into which were to be set the pictures.

SECOND
PRIZE
WATERSCAPES

HELEN G. CLOGSTON AFTERNOON ON LAKE CHAUTAUQUA

Fourth, he bound all the edges of the opening with a dull olive-green passe-partout binding, letting the binding come close to the outside edge of the box and even with it, and just turning over a narrow edge and sticking it to the inside of the box.

Fifth, he mounted his pictures in the opening of the boxes. The four panels were then ready for the completion of the lantern.

Sixth, he cut strips of the passe-partout binding the length of the boxes. Two of the box-covers were taken and the edges set together at right angles. These edges were then joined together on both sides with strips of the binding; the third panel was then attached, and finally the fourth, making a square lantern with small angles at each corner where the boxes came together. A piece of corrugated board, the kind that has the corrugation enclosed between smooth papers, was punctured with holes and fitted into the lantern for a bottom to hold the candlestick, which was a small brass one known as a soldier's or camp candlestick. Olive-green crêpe-paper was cut in strips two and one-half inches wide, pulled out at the edges to make a "fluffy ruffle," a little paste was applied along the angle where the boxes joined, the strips of crêpe-paper (previously creased in the center so that they would go on evenly) were stuck into the pasted edges the bottom of the lantern covered with a square of the paper, the strips brought together at the bottom, fastened with a little paste and the ends left to hang free at a length of five or six inches.

Green flower-wire was decorated with Japanese cherry-blossoms and used for cords by which to hang the lantern—a lantern like this which has been in use for two years is just as attractive as it was the day it was made.

The plate-boxes stay the lantern so that it does not warp or lose its shape, as would be the case if it was made — as of course it could be — with four pasteboard panels.

One could vary this lantern in many ways. There is the ever-ready blue-print. This paper, not printed as deep as for mounting as pictures,

would serve admirably for a blue lantern for a room where its color would harmonize with the decorations. The Japanese tissue could have tinted tissue-paper backing, and if the print was a sunset view a delicate pink paper would give a hint of rose in the sky. For a water-scene a Nile-green paper would suggest the real color of water, etc., etc.

In making a lantern like this described, one must remember that he is aiming at decorative effect, not at the picture for the picture's sake, but only as it lends itself to the idea to be worked out in the object in hand.

PICTURE POSTCARDS

THE fondness for the picture postcard is on the increase instead of on the wane, and nearly every town, if it has not more than a dozen buildings, has its town picture postcard made by some enterprising amateur who thus turns an honest penny while supplying the popular demand.

Why not make use of this universal fad and thereby turn out an original and appropriate Christmas gift. First make a negative of either the house, or, better still, the room of the person to whom you desire to make a gift, print the picture on twenty-five postals, do them up in a real Christmas packet and drop them into Santa Claus' pack in time to be delivered on Christmas Day.

One may buy the cards ready sensitized or, better still, may buy the postals and sensitize them himself. If the cards are not the government postals, but require the addition of a stamp, then do not forget the stamp on each, so that they are all ready to send as far as postage is concerned.

In printing the picture on the card do not use up all the surface. It will be far more dainty if only a portion of the card is used. If it is the house itself print it at the top of the card so that the lines run the short way of the postal.

A more ambitious present is the sensitizing of a packet of writing-paper and printing the picture at the top of each sheet. This would be an especially pretty gift.

Get a good quality of paper and use the formula for silver-prints or for blue-prints. Sensitize a strip across the top of the paper and protect all the sensitized surface from the light except that which is to receive the picture. The whole sheet may be immersed in the toning and fixing-solution without injury to the paper, the only precaution being that the sheets must be dried flat and when dry put under pressure to smooth and straighten.

In the October number of PHOTO-ERA, in "The Crucible," will be found a formula for sensitizing postcards which when finished have a pleasing brown tone. It might be well to try this formula, as the after-process simply requires washing the card in a few changes of water, then immersing in a weak solution of hydrochloric acid, and then a final washing.

A NOVEL BLUE-PRINT

THIS Christmas suggestion is for the Guild members of the gentler sex, though there is no reason why the blue-print itself might not be made by even a very advanced worker in photography.

A square of bolting-cloth large enough for a sofa pillow was sensitized with blue-print solution. The cloth when dry was stretched on a flat board, held in place by thumb-tacks, and on it was arranged a design in leaves, using the natural leaves. A sheet of glass was laid over it and the whole placed in the sunlight till the cloth began to bronze. The glass and leaves were then removed, the fabric washed in running water, then stretched and dried. The result was white silhouettes of leaves on a delicate blue background. The cloth was made up over a pale rose color, and the effect was not only novel but very pretty as well.

This idea might be carried out in a less ambitious way by using squares large enough for pin-cushions instead of attempting so large a piece of work as a sofa pillow. The leaf designs are very effective, but the printing of landscapes for figures on fabrics to be used for decorative or any other purpose is a perversion of photography against which every good amateur should set his face and have none of it.

A PORTFOLIO OF PRINTS

ONE of last year's gifts which has given great delight to the recipient was a portfolio of prints made by an amateur who had a great fondness for historical scenes, buildings, relics, etc. The person to whom the gift was given had such a great surplus of this world's goods that it was very hard to find anything of which she did not possess a duplicate, and in most cases of much greater worth than the donor could afford. Remembering, therefore, her penchant, too, for historic things, the amateur selected such of his negatives as recorded historic scenes and made from them some fine prints, using in most cases heavy platinum paper with either smooth or rough surface, as the qualities of the negatives demanded. They were all in black-and-white. Then he obtained some heavy paper the color just off from white, and some sheets of Japanese tissue-paper and had them cut in size 11 x 14.

The pictures were carefully trimmed, then a very light quality of medium shade gray paper was obtained and as many pieces cut from it as there were prints, the gray paper being cut half an inch larger all round than the print for which it was designed.

These gray squares were mounted on the heavy white paper at the proper position chosen for the picture, the sheet of Japanese tissue was then laid over the heavy paper, and held in place at each corner by the small disks gummed on both sides which come for such purposes. The print was then mounted on the Japanese tissue itself, and the gray paper visible through the translucent tissue gave just a band of soft, inde-

finable gray around the print, which made a very artistic finish.

The title of the picture was lettered in the lower left-hand corner with a small drawing-pen. On the back of the mounting was written a short description of the picture, with such historical facts briefly stated as would give one quite a bit of national lore.

A "LULLABY" BOOKLET

THIS dainty Christmas gift already completed is for the mother of the "dearest baby in the world." The amateur who made it began it some months ago, but a description of it may give a suggestion for a less ambitious gift along the same lines.

Eugene Field's charming "Lullabies" were chosen and sheets of parchment paper 8 x 10 in size were selected, made into a booklet, and these dear lullabies lettered on them in ink, for the amateur was as clever with pen as with camera.

Appropriate photographs had been made to fit each lullaby, and were mounted in the spaces left blank for this purpose. The book had a red ooze-leather cover, and was tied with green ribbons, and was a most Christmasy looking book.

Now if one has a friend — and who has not — in whose home is a dear, dear baby, then one of these lullabies could be thus utilized, and made into a very artistic and unusual gift.

Take the "Norse Lullaby," for instance. There are three stanzas, and each stanza suggests a picture — the first two a winter picture, and the last one a picture of a mother rocking a baby to sleep. In following out this suggestion, letter each verse on a separate sheet of paper, mount the pictures also on separate sheets, alternating a picture with a stanza. If one wished to make the pictures especially attractive they could be printed on an 8 x 10 sheet of paper and thus do away with the mounting entirely, the print taking the place of a leaf of the book. In case one does this the paper chosen should be either the heavy rough or the heavy smooth. If the pictures are done in sepia — though for winter scenes the black-and-white is more appropriate — then have the lettering done in sepia.

With the pictures, title-page, etc., one would have a booklet of ten or a dozen leaves.

Every amateur undoubtedly has negatives in his collection suitable for the illustrations for the Norse Lullaby, and even if he has not he can make them, for it is winter pictures that are needed for two of them, and one can always find a mother and babe ready to pose for the third picture.

AWARDS — WATERSCAPES

First prize: D. H. Brookins.
Second prize: Helen W. Clogston.
Third prize: Dr. W. F. Zierath.
Honorable Mention: R. E. Weeks, F. E. Bronson, C. W. Christiansen, J. H. Field, Grace E. Mounts, Jessie B. Dixon, Clare J. Crary, Charlotte M. Birch, Clarence G. Brooks, J. A. Murdoch, R. A. Buchanan, Gust Horlin.

Monthly Competitions

Closing the last day of every month.

Address all prints for competition to PHOTO-ERA. *The Round Robin Guild Competition, 383 Boylston Street, Boston, Mass.*

PRIZES

First prize: Value $10.00.
Second prize: Value $3.00.
Third prize: Value $2.50.

Honorable Mention: In addition to the awards, the names of those whose work is deemed worthy of reproduction with the prize-winning pictures, or in later issues, will be published.

Prizes may be chosen by the winner, and will be awarded in books, magazines, enlargements, mounts, photographic materials or any article of a photographic or art nature which can be bought for the amount of the prize won.

RULES

1. These competitions are free and open to all photographers, whether or not subscribers to PHOTO-ERA.

2. As many prints as desired, in any medium, mounted or unmounted, may be entered, but they must represent the unaided work of the competitor.

3. The right is reserved to withhold from the competitions all prints not up to the PHOTO-ERA standard.

4. *A package of prints will not be considered eligible unless accompanied by return postage at the rate of one cent for each two ounces or fraction.*

5. *Each print entered must bear the maker's name, address, Guild number, the title of the picture and the name of the competition for which it is intended, and should be accompanied by a letter, sent separately, giving full particulars of date, light, plate or film, stop, exposure, developer and printing-process.*

6. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA. If suitable, they will be reproduced, full credit in each case being given to the maker.

SUBJECTS FOR COMPETITION

November — "Genre Studies." Closes December 31.
December — "Home Portraiture." Closes January 31.
January — "Illustrated Poem." Closes February 29.
February — "Mountains." Closes March 31.
March — "Atmospheric Effects." Closes April 30.
April — "Decorative Photography." Closes May 31.
May — "Animals." Closes June 30.
June — "Pinhole Pictures." Closes July 31.
July — "Harbor Scenes." Closes August 31.
August — "Flowers." Closes September 30.

A DEVELOPER FOR GASLIGHT PAPERS

BLACK markings are a frequent trouble met with in developing all kinds of gaslight prints. A developer which completely prevents these characteristic defects has been suggested by M. Quentin. Although the whites are made an intense yellow, this color entirely disappears in the fixing-bath. The formula is as follows:

Metol	10	grains
Hydroquinone	50	"
Sodium sulphite	280	"
Sodium carbonate anhydrous	350	"
Potassium iodide	30	"
Potassium bromide	8	"
Distilled water	10	ounces

FINGER-MARKS ON NEGATIVES

THESE are due to carelessness in handling, and need not occur if a little caution is exercised. They can usually be removed by drawing a piece of chamois-skin tightly over the finger, moistening it in benzine and rubbing it back and forth rapidly over the marks, using slight pressure.

Answers to Correspondents

Readers wishing information upon any point in connection with their photographic work are invited to make use of this department. Address all inquiries to ELIZABETH FLINT WADE, *321 Hudson Street, Buffalo, N. Y. If a personal reply is desired, a self-addressed, stamped envelope must be enclosed.*

MRS. H. E. C.— Your print entitled "Memories" has much artistic merit, the subject is carefully posed without being too much posed, and the technical finish is excellent. The criticism of the picture would be that the name did not fit the picture. The picture is very interesting, showing, as it does, a view of one of the oldest houses in Massachusetts, and is one which we should like to add to the Historical Picture collection.

ELEANOR S.D.— It would seem that you have been poisoned by the bichromate of potash. This chemical should be handled very carefully either in the crystals or in solution. The powder from the crystals is extremely irritating to the tissues of the nose, while the solution poisons the hands if it comes in contact with a slight wound or abrasion. You should consult your physician at once and have him compound a healing-salve for the sore. [Such queries as the foregoing are answered at once by mail, but are also inserted in the column for the benefit of other members.— ED.]

SAMUEL L.— You can restore your box of plates which have been accidentally light-struck, by the following method. Make up a solution of thirty grains of chromic acid, sixty grains of bromide of potassium, and ten ounces of water. Soak the plates in this solution for fifteen minutes, wash or rinse well, then dry in a place free from dust. Of course this process must all be conducted in the dark-room. The plates lose something of their sensitiveness, and the exposure should be doubled; that is, twice as long as for similar plates which have not been injured. Why not remove the silver from the plates and sensitize them for blue transparencies or for black tones by the kallitype process? You would be much pleased with the result should you decide to do so.

DELIA BRANDER.— A weak solution of hydrochloric acid and alum will remove the pyro stain from the negative. Use a salt solution for stop-bath for your solio prints and they will be a much better color. The print goes on toning sometimes after it is removed from the toning-bath, but if dropped into a salt bath the toning will be arrested at the point it was when taken from the toning-solution.

A. H. R.— You do not need a special camera in making enlargements. The article published in January, 1907, number to which you refer will give you all the directions in detail.

H. A. C.— See answer to A. H. R. as to number in which the article on enlarging was published.

F. E. D.— Sodium thiosulphate is what is known commercially as hyposulphite of soda. Sodium thiosulphate is the correct name, but is seldom given, as hyposulphite of soda, often shortened to "hypo," is the name by which it is universally known. The fact is that few dealers would know what chemical you wished for if you should ask for sodium thiosulphate.

KATE R. L.— You can hasten the drying of a plate by soaking it for a short time in alcohol. The alcohol displaces the water in the film, the evaporation of the alcohol takes place rapidly and the film therefore dries quickly. A much quicker process is the soaking the plate for a few moments in a strong solution of formaldehyde — an eight or ten per cent solution — then subjecting the plate to heat. The formaldehyde hardens the film, making it impervious to heat.

FRANCES D. C.— Local reduction may be accomplished by means of a piece of clean chamois and alcohol. Stretch the chamois over the end of the forefinger, dip it in alcohol and rub the dense portion which it is desired to reduce. The rubbing should be done gently and the chamois replaced by a clean spot when it becomes blackened with the silver. It is wiser to make two sittings at this process. If continued too long the film becomes very soft and suddenly tears or rubs through the glass, whereas if a certain amount of the deposit is removed, then the film is allowed to dry and the process repeated, the result is eminently satisfactory.

GRANT SULLY.— A formula for a simple transfer-varnish is made by dissolving one-half ounce of gum mastic in four ounces of alcohol, and, when thoroughly dissolved, adding one dram of poppy-seed oil. This varnish would answer every purpose for which you wish to use a transfer-varnish.

THE CRUCIBLE

A MONTHLY DIGEST OF FACTS FOR PRACTICAL WORKERS

Conducted by PHIL M. RILEY

Readers are encouraged to contribute their favorite methods for publication in this department Address all such communications to Phil M. Riley, 383 Boylston Street, Boston, Mass.

COLOR-PHOTOGRAPHY NEAR

A NEW ONE-PLATE PROCESS FOR THE ORDINARY CAMERA

So much space has been devoted by the press of late to the Lumière Autochrome process of color-photography that those who have not watched the progress made in this line of work during the past year are apt to associate one-plate processes exclusively with it. Screen-plate color-photography, in which the light-filters are distributed in the plate itself, has at last developed from the experimental stage into the region of practical usage, and there will soon be placed upon the market a new plate of this sort, which is a further development of the well-known Joly linear method, but which embodies advances and advantages of the greatest importance.

It will be remembered that Professor Joly of Dublin placed a sheet of glass ruled with fine transparent lines of red, blue and green against the surface of a panchromatic plate and made the exposure through it. The colored lines acted as light-filters, each line practically transmitting only its own color, so that the resulting negative consisted more or less of bright and dark lines. He then made a transparency from this negative, which, when bound in contact and proper register with a ruled screen similar to that used when making the exposure, reproduced the colors of the subject photographed. The colored image was, of course, due to the fact that the colored lines of the screen were visible through the clear lines of the transparency, but covered by the opaque lines. This process was almost simultaneously worked out by MacDonough in America, but was not successful in either case. First of all, the ruled lines were not fine enough and the image was not homogeneous; in other words, the lines were visible to the eye and had an irritating effect. Then, too, it was found difficult to secure uniform contact between the ruled screen and sensitive plate, and, finally, the ruled screens were expensive to manufacture.

To John H. Powrie and Miss Florence Warner of New York has come the satisfaction of being able to perfect the Joly process and successfully combine the color-screen with the sensitive emulsion by a method which ensures manufacturing the plates at a reasonable cost. There are many advantages permitted by the linear form of screen-plate which are not possessed by irregular grain color-screens, and these, together with other important developments of the process, which will be described later, greatly increase the possibilities of one-plate color-photography and make this process a serious rival of its predecessors. The story of Miss Warner's association with Mr. Powrie throughout his experiments, her assistance in the laboratory work, her financial aid, and, above all, her untiring interest in the process and faith in its ultimate success form an interesting story for which, however, there is no space here. Suffice it to say that they have together worked out an exceedingly practical and simple process possessing advantages which are almost overwhelming. A linear color-screen is combined with the sensitive emulsion so that but one plate is required, to be used in an ordinary plate-holder and exposed but once in an ordinary camera. This plate, it should be noted, is more rapid than other screen-plates, because of the greater transparency of the light-filters and the fact that there are no interstices to be filled by an opaque deposit. The color-screen, being of linear and very regular form, has enabled Mr. Powrie to devise a method of printing as many positives from a color-negative, or vice versa, as may be desired. This feature is of immense importance and marks the chief advantage of this sort of plate over irregular grain screen-plates. The ingeniousness of Mr. Powrie's methods also makes it possible to produce, without any attempt at registration whatever, a set of full-tone negatives, in which the linear ruling is absent, representing the three separate colors in the subject. These may be employed in making paper prints by the pinatype or other processes, or for making half-tone plates for three-color press-printing.

The basis of the process is a combination of the sensitive emulsion and linear light-filters, which form a color-screen. This is known as the Florence Heliochromatic Screen-Plate. The color-screen is placed between the glass and the sensitive emulsion as in the Lumière process, but consists of fine transparent, colored lines of red, green and blue, which, with the plates now in use, are from $\frac{1}{250}$ to $\frac{1}{1250}$ of an inch in width. Joly and MacDonough failed in point of uniformity beyond $\frac{1}{250}$ of an inch, and therefore the method of producing lines of such extreme fineness constitutes the most important advance step of the Warner-Powrie process.

In making the color-screen a plate of ordinary glass is coated with bichromated gelatine or other suitable colloid. This, when dry, is exposed to the light and printed through a specially prepared Levy screen or grating ruled with opaque, parallel lines, which are double the width of the transparent spaces between them. These spaces are the exact width of the red and green lines in the finished screen. Light passing through the transparent lines of the grating ren-

ders the gelatine beneath insoluble in warm water, while the portions protected by the opaque lines wash away, leaving upon the glass transparent gelatine lines in relief with depressions of bare glass between. The plate is then placed in a solution of a suitable dye, which penetrates the colloid lines and colors them green. Immersion in a bath of alum or tannic acid fixes the color so that the plate may be washed and again coated with the bichromated gelatine as before. It is then ready for printing once more under the same grating, but shifted — by means of the micrometer-screw of the carrier in which it rests — so that the green lines just secured are protected by the double width of the opaque lines of the grating, as is a portion of each of the remaining unexposed spaces between the uncovered lines and those just stained green. The plate is treated the same after this exposure as for the green lines, except that a red dye is used. At this stage the screen, when viewed by transmitted light, appears yellow as a result of the mixture of red and green.

After treating the plate again the same as for the first two colors, and coating it once more with the gelatine, the remaining spaces are filled with blue. For this last printing it is unnecessary to have the plate registered under the grating, as it may be exposed through the back. The lines of red and green act as a negative and protect the colloid under them from becoming insoluble, so that the light reaches the sensitive gelatine through all portions of the screen not occupied by green and red lines, and the dye, after development in warm water as before, colors them blue.

In this way a continuous series of colors is secured over the entire screen without white interspaces or overlapping of two lines of different color. Under a microscope the plate shows a series of fine red, blue and green lines, the blue lines having been purposely made narrower than the red and green, because blue is the color which appears most intense in the screen, and it is, therefore, an advantage to have it less visible. To the naked eye the fineness of these lines renders them invisible, and by transmitted light the plate appears gray in color. After being coated with a suitable varnish, a panchromatic, sensitive emulsion is applied in the usual way. Such is the Florence Heliochromatic Screen-Plate as it is prepared ready for the production, at one exposure in an ordinary camera, of a negative in the complementary colors of nature, or, by reversal, a positive transparency in colors.

The reversal method of securing positives, which involves a number of chemical reactions, is, however, roundabout, unnecessary and not to be advised. Aside from the numerous operations required, satisfactory reversal demands an extremely thin coating of the sensitive emulsion resulting in a plate of but little latitude, a short range of gradation, and necessitating very accurately-judged exposures. Here we find one of the chief advantages of the Warner-Powrie system, in that one color-plate, either negative or positive, may be printed from another just as a negative may be printed from a positive transparency, or vice versa, and by the ordinary procedures of exposure, development and fixation which every photographer understands. More than this, the sensitive emulsion can be of the usual character, and the certainty of obtaining satisfactory results increases with the greater latitude of the plate.

It is readily seen that these plates must be exposed through the glass so that the light will pass through the color-screen before reaching the sensitive emulsion. Negatives thus secured are in complementary rather than true colors; viz., red appears green, green appears purple, yellow appears violet and violet appears yellow. This is easily explained in a simple way by the fact that each line in the color-screen transmits practically only its own color. The reflected light from a red rose, for instance, passes through the red lines, but is absorbed by both the green and blue. After development and fixation a deposit of silver will be found under the red lines, thus stopping them out and leaving the green and blue lines transparent over the area representing the rose, giving it a bluish-green color.

All this has to do with the factory method of manufacturing the plates and does not concern the photographer except in so far as he is interested in the theory of the process. The manipulation of the plates, as they will eventually be placed in the hands of the consumer, is as simple as for any panchromatic plates and presents no more difficulty than is involved in making an ordinary negative and a transparency from it.

Having secured a negative in complementary colors by the usual methods of development and fixation, printing may be considered. First, let us suppose that three full-tone negatives are desired for half-tone work or printing by the pinatype process. The color-negative is placed in a printing-frame glass side toward the light, which passes through a filter allowing only one of the three colors, red, green and blue, to reach the negative beneath. In contact with the film side of the negative is placed a sheet of glass or celluloid or hollow metal frame, the thickness of which bears a definite relation to the distance between the printing-frame and the light — which may be daylight, electric light or gaslight — as well as the angle through which the frame is turned during exposure. Against this glass is placed an ordinary sensitive plate. One-third of the total exposure is given with the frame at right angles to the direction of the light, one-third with the frame turned slightly toward the light and one-third with the frame turned away from the light to the same degree. If the proper adjustment is maintained between the light-distance, thickness of glass and angle of inclination, the set of lines composing one-third of the color-screen is printed at the first exposure, it is duplicated at one side of the lines first printed at the second exposure and again on the other side of the first set of lines at the third exposure. In this way a full-tone positive is secured, representing, for instance,

the red sensation. From this a negative may be made by the ordinary procedure known to every photographer. Similar series of exposures under suitable filters will produce positives for the green and blue sensations from which negatives may be readily made. Of course a certain amount of aberration is of necessity bound to occur, but the lines are so fine that the variation is trifling and need not be seriously considered in practical work.

Printing positive color-transparencies direct from color-negatives is of still greater interest to the average worker and is accomplished in the same manner described for making full-tone positives, except that only one panchromatic screen-plate is used, with its lines crossing those of the color-negative. Three exposures are given as before, thus duplicating each line on both sides of the first. In this way the color-positive shows the ruling of the second plate only, without the introduction of black or white to degrade or dilute the colors, as occurs when printing from a positive or negative in the usual way. Mr. Powrie deserves great credit for this clever but simple solution of a difficult problem.

Several other methods are available for securing triplication of the negative images, principal among them being the use of two mirrors, to multiply the light-sources, fixed to opposite sides of the printing-frame at such a distance and angle (about 110 degrees) that the same effect is produced by one exposure as is obtained by shifting the angle of the printing-frame. This method has been successfully employed in printing a color-negative on bleach-out paper such as Uto. Ordinarily only those portions of the paper under the red lines, for instance, become red. The adjoining lines of blue and green under the red object are opaque and remain black, so that only one-third of the image is red while two-thirds is black. By triplication of the lines with mirrors, as described, this defect is done away with and more brilliant prints result. Light from three sources will also produce the same triplicating effect as the mirrors if the printing-frame is placed at the proper distance.

The claims of its promoters for the Warner-Powrie process might be questioned but for the fact that they are substantiated by results. England has had a better opportunity to view these than America, because both Miss Warner and Mr. Powrie are now in London attending the first annual exhibition of the Society of Color Photographers, the only organization of its kind in the world. Undoubtedly the chief interest in this exhibition is centered in the examples of color-work which they are showing. Mr. E. J. Wall, perhaps the best authority in England, has examined all of the exhibits very carefully, including these, and states that in his opinion the transparencies by this process are more brilliant — that is, more transparent — than any others by screen-plate methods. Mr. Wall also says, "I think it the first really practical process of color-photography, applicable to all subjects by the man in the street, the hand-camera worker and the professional photographer. It is as great an advance on the starch-grain or other irregular-grain processes as these were over the ordinary three-negative processes, because one can obviously print on any surface. It promises one practically a matrix from which reproductions can be made, and if the plates are put on the market at anything like reasonable prices it is the process of the future." No less enthusiastic are men like Dr. C. E. Kenneth Mees, A. J. Newton, William Gamble and J. H. Pledge, all prominently identified with color-photography in England.— *Phil M. Riley, in Boston Transcript, October 23, 1907.*

BETTER COLOR-RENDERING IN THE WARNER-POWRIE PROCESS

A SIGNIFICANT point in connection with the plates for this method of color-photography is that the color-screen of the plates used for making both negative and positive transparencies is the same. America has not yet had the opportunity which England has enjoyed to judge of the accuracy of color-rendering by this process, although British authorities pronounce it excellent, which means much. Should there be any slight inaccuracies, however, they could probably be rectified by the application of a well-known optical principle. It is generally conceded that all of the spectrum colors must act to produce the negative, while but three pure colors should be used for viewing the finished positive. Mr. Herbert E. Ives, the well-known color-expert, agrees with PHOTO-ERA that two plates having different color-screens might be employed to advantage: one, carrying all of the spectrum colors, for making the negative; and another, carrying only three pure colors, for making the positive.

TRIMMING PRINTS

IN most cases judicious trimming will greatly enhance the artistic value of a picture. A half-inch or more from the foreground, or perhaps from the top of the picture, as the case may be, would emphasize the perspective, which is entirely lost, owing either to the wide expanse of sky or the stretch of foreground.

In looking at a picture the eye involuntarily seeks out the high-lights. In some of the landscape pictures one sees, a strong high-light appears near the edge of the picture, which obtrudes itself on the vision though it was not centered on the principal object, nor did it have to do with the merit of the picture. It was simply an ugly blotch on what would otherwise have been a fairly good picture. When this objectionable spot is trimmed away the improvement in the picture is at once apparent.

One of the points to which amateurs should pay special attention is the confining of the high-lights to a much circumscribed limit. There may be many gradations of light and shade in a picture, but great care should be taken neither to have the high-lights too intense nor to have them scattered.

An art maxim which has been often repeated is that the center of a picture is its weakest point.

This axiom is often overlooked, for in a number of landscapes received recently from different amateurs the object of greatest interest was in the center of the picture, while in some of the figure-studies the figure had been posed in the very center of the plate. In each one of these pictures the necessary pruning obviated at once this most glaring fault.

STRIPPING FILMS FROM PLATES

ONE of the easiest methods of stripping films to be placed upon new glasses, whether the original glass has defects which will show in printing or has been accidentally cracked, is to immerse the plate in the following bath:

Sodium fluoride	30	grains
Sulphuric acid	½	fluid dram
Water	10	ounces

The film will soon float off, and may be considerably enlarged, if this is desirable, by standing in clear water for several minutes.

THE SKY IN SNOW-SCENES

THE pictorial photographer has constantly to contend with a number of difficulties due to inherent tendencies of the dry-plate, among which may be mentioned the loss of tone-value in the sky of snow-pictures, which is almost invariably too light. In nature the sky in such a scene is distinctly darker than the high-lights of the snow, but we see very few photographs in which these values have not been reversed. As a result the proper balance between the sky and the high-lights is destroyed, and the tone-quality of the picture is at fault. The reflected light from even a very dull sky seems to affect the plate more than that emanating from the snow itself, and this defect is likely to occur in every instance unless carefully guarded against.

In snow-scenes we have a very long range of gradation, the subtle distinctions even in the high-lights being desired, as well as detail in the dark objects usually found in the foreground. Over-exposure is fatal to the finer gradations; under-exposure, to the detail. It might seem that as color is almost entirely absent from such views, an orthochromatic plate and color-screen is not necessary; but their tendency to give negatives having a good printing-value in the sky is worthy of consideration. With such a plate and screen, ample exposure and full development will do most to ensure truthful values.

EXPOSURE WITH COLOR-SCREENS

ONE frequently wishes to test a color-screen in order to ascertain what increase of exposure — above that necessary with the ordinary lens alone — is required when it is used. This can be easily done by selecting an average landscape and photographing it in such a way as to give a graduated test-negative. The screen used is not likely to be less than a four-times screen, nor should it be more than twelve times. We shall not, therefore, consider a greater range in this test, for deeper screens produce unnatural and unpleasing results and are not advisable. In fact, the writer believes that usually a four or six times screen is ample, and that the occasions are rare, indeed, when one deeper than eight times is called for.

Our range being from four to twelve, we may conveniently devote one inch of the width of a 4 x 5 plate to the ratios 4, 6, 8, 10, 12. By pencil-rulings on the slide of the plate-holder we can easily arrange to successively expose the inch-sections of the plate. Having determined the correct exposure without the screen, which is, we will say, one-half second, we remove the slide from the plate-holder and expose for four times that, or two seconds. Now push in the slide to the first ruling and expose one second; then to the second ruling and expose one second, and so on until each remaining section has received one second exposure. The result is a graduated series of exposures ranging from four to twelve times the exposure required when the screen is not used. Normal development will quickly show which of the exposures has been correct and, consequently, which of the ratios is to be adopted in future work with this particular screen.

DEVELOPING ENLARGEMENTS WHILE PRINTING

IT is quite possible to develop a bromide print while the image is impressing itself upon the paper, saving considerable time thereby. The easel used should be so arranged that a long, narrow tray may be placed underneath to contain the developer and catch the drippings from the print. After securing the focus on a sheet of white paper, the sensitive bromide paper should be moistened in water and then pinned in proper position on the easel. Exposure should be made preferably by artificial light, as, being a little longer, it gives more latitude in manipulation. The developer should immediately be mopped evenly and rapidly over the print with a large tuft of absorbent cotton. This, it will be found, can be done without obstructing the light-action to any appreciable extent. The print must be fixed and washed in the usual way.

GLASS POSITIVES BY THE KALLITYPE PROCESS

UNSATISFACTORY negatives or light-struck plates, which sooner or later find their way to the photographer's waste-basket, can easily be put to the far better use of making glass positives. First of all, the silver must be entirely removed so that only the transparent gelatine-coating remains on the glass. This can be accomplished with Farmer's reducer, prepared by adding enough red prussiate of potash to a plain hypo fixing-bath to color it a strong yellow. Then wash the plate thoroughly, dry and place for about two minutes in a kallitype sensitizing-solution. It is now ready for printing, which should be slightly longer than for paper, but developing, clearing and fixing are conducted the same as for paper prints. Complete formulæ for the kallitype process and directions for working it will be found in the PHOTO-ERA either for May, 1906, October, 1906 or April, 1907.

PHOTOGRAPHY IN MID-AIR

THAT photography can be of the greatest possible service in military operations has been demonstrated by the success of Herr Marie's projectile, which, it is claimed, has secured photographs at varying heights up to half a mile. The camera is constructed in the form of a conical shell and is thrown, by a sort of trap, into the air, from whence it turns at a predetermined angle and points downward slightly as it begins to descend; the shutter is then automatically released and the picture is taken of a wide expanse of country. It is remarkable with what accuracy the flight, and spot at which the camera will fall, can be calculated when there is little or no wind. Precautions have, of course, been taken to avoid damage by concussion when the camera falls to the ground.

TITLING NEGATIVES

ALTHOUGH there exist several methods of transferring printing or writing to negatives, none is simpler of execution than the following: Upon a piece of good, coated paper write or draw whatever inscription is to appear on the negative, using a clean pen dipped in a solution of red prussiate of potash (potassium ferricyanide). Next dampen lightly but evenly with cold water that portion of the film-side of the negative intended to receive the lettering, and upon the moistened space evenly but briefly press down the paper bearing the inscription. After carefully removing the paper, the inscription will be found, reversed, on the film-side of the negative. Now if a solution of sodium hyposulphite be applied to the space thus treated, or, better still, the entire negative be immersed in a fixing-bath, the inscription will almost immediately turn white. The negative, of course, must now be thoroughly rinsed. Whoever has a set of rubber type can make an impression on a piece of coated paper and then proceed as directed. In this case it is obviously necessary to saturate a piece of white blotting-paper in the above-mentioned ferricyanide solution, and upon this press repeatedly, thus moistening the rubber stamp. The type itself suffers no harm if immediately after use it is pressed several times upon a sheet of blotting-paper moistened with water, thus freeing it of any traces of the salt. Following the directions, given above, one is sure to obtain perfect, clear-cut letters on positives.— *Die Photographie.*

REDUCTION WITH AMMONIUM PERSULPHATE WITHOUT STAINING

AMMONIUM persulphate as a reducer is particularly advantageous in cases of over-development when the exposures have been correct, for the density of the more opaque portions will be reduced considerably before the lesser deposits in the shadows have undergone any appreciable change. A plain solution of the salt, unfortunately, has certain uncontrolable characteristics, which at times result in irregular action and staining, although frequently perfect results are had without any difficulty. Mr. H. W. Bennett, writing in the *Journal* of the Royal Photographic Society, gives a formula for a solution which will keep indefinitely and is free from the usual objections to a plain persulphate solution. Mr. Bennett's formula is as follows:

Ammonium persulphate	240	grains
Sodium sulphite	48	"
Sulphuric acid	48	minims
Water to	5	ounces

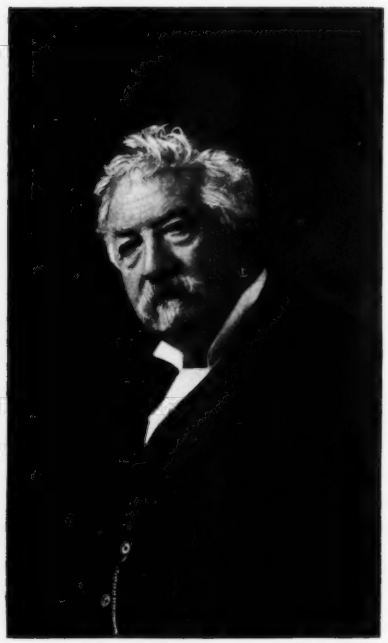
The solution should be mixed twenty-four hours before it is required for use. Ordinarily it is diluted with nine times its bulk of water, making a one per cent solution of the persulphate, but with some plates it may be desirable to use one part of the stock solution to four parts of water. Usually the weaker bath is preferable. When the plate has been immersed in the solution the dish should be rocked to ensure even action. The white precipitate, seen above the denser portions of the negative and causing turbidity of the solution, is an indication that all is as it should be, and the operation may be prolonged until sufficient reduction has been secured without any danger of staining or loss of quality. The plate should then be washed rapidly in three or four changes of water and placed for ten or fifteen minutes in a solution of hypo — four ounces of hypo to the pint of water — and then washed in the usual manner. The negative changes to a brown color in the reducing-bath and to a black or brownish black in the hypo-solution.

REMOVING AN UNDESIRABLE BACKGROUND

OCCASIONALLY, in making photographs to be used as diagrams and otherwise, it becomes desirable to remove all of the film composing the background, particularly if undesirable, so that clear glass will be left to print black without over-printing the image. This can be done by cutting the film away with a knife if the outlines happen to be straight. Ordinarily, a chemical solution which will dissolve the film is the best means to employ, but it must be applied with great care. Two solutions are required, both of which are very poisonous. The first is a saturated solution of iodine flakes in alcohol. It will require shaking occasionally for a day or so to secure it. The other liquid is a saturated solution of potassium cyanide in distilled water. About fifteen drops of the former added to twenty-five drops of the latter produce a clear solution. With a camel's-hair pencil apply the mixture carefully around the outlines of the image of the dry negative, being very careful not to go beyond the outlines, as the solution is very strong and will remove any part of the image it touches. It is advisable at first to clear a width of perhaps an eighth of an inch around the image, after which the negative should be quickly washed in running water to prevent the solution eating back into the image itself. The remainder of the background can, after ten minutes' washing, be readily removed by applying the solution and then washing and drying the negative.

NOTES AND NEWS

Announcements and Reports of Club and Association Meetings, Exhibitions and Conventions are solicited for publication



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ANTOINE LUMIÈRE

BOSTON GREETS LUMIÈRE

WHEN Monsieur Antoine Lumière, the active head of the firm of A. Lumière & Sons, of Lyons, France, first to solve the problem of color-photography, informed us, October 30, that he should make a flying visit to Boston the following Friday, we naturally seized the opportunity to honor him with a reception and dinner, even at so short a notice. This momentous and happy event took place Friday evening, November 1, at the Hotel Brunswick, Boston. After an inspection of finished Autochromes by Lumière experts and Frank M. Steadman and Prof. F. M. Gilley, the company partook of a banquet arranged by Wilfred A. French, of PHOTO-ERA. Among the invited guests were representatives of scientific and educational institutions, investigators, photographers and artists — Antoine Lumière; Prof. Charles R. Cross and Prof. Louis Derr, of the Massachusetts Institute of Technology; Prof. F. M. Gilley, of the Chelsea High School; Edward Henry Clement, journalist, critic and painter; Prof. John Ritchie, Jr., president of the Boston Scientific Society; Alfred T. Barraud, J. H. Garo and Morris B. Parkinson, professional photographers; Horace B. Pearson, amateur photographer; F. M. Steadman, photographic expert; C. Poulaillon and J. E. Brulatour, of the Lumière North American Company, and, the host, Mr. Wilfred A. French, the editor of PHOTO-ERA. Thus, according to the *Boston Transcript*, every line of relationship of photography to art and science had its worthy representative.

In introducing the distinguished guest Mr. French dwelt with emphasis on the many brilliant achievements in the realm of photographic science by the Lumières, which culminated recently in the invention of the Autochrome process of color-photography — the realization of a long-cherished dream. M. Lumière, deeply moved, responded briefly, limiting his remarks to expressions of gratitude for the cordiality of his reception. Speeches, mainly of a scientific character, were made by Professor Cross, Professor Derr, Professor Gilley, Mr. Clement, Professor Ritchie, Mr. Barraud, Mr. Parkinson, Mr. Poulaillon, Mr. Steadman, Mr. Brulatour and Mr. French.

ERRATUM

QUITE a large number of inquiries have been received at this office regarding the formula which appeared on page 178 of the October issue. This is obviously a typographical error such as will occasionally creep into the pages of any magazine in spite of the greatest effort to avoid them. The quantity of sodium carbonate crystals in the formula mentioned should be four ounces.

COLORING PHOTOGRAPHS

THE article on coloring photographic prints— glossy or matt — by B. I. Barrett, is, without doubt, the most practical demonstration of the subject that has come to our attention. The second portion, which will appear in the January issue, is of even greater interest, as it describes, clearly and in detail, the artist's own method of coloring prints in an eminently satisfactory manner.

A MATTER OF CREDIT

WE find that the interesting reprint, "Daylight Enlarging with a Pocket Camera," by E. R. Plaisted, which was published in our October issue and credited to *Photo-Notes and the Bromide Monthly*, London, appeared originally in the pages of our esteemed cotemporary *The Camera*. We regret that our English friend is so

loath to give proper credit for American reprints, especially as we see printed, as original matter, in the October issue, "Transparent Spots on Negatives and How to Treat Them," by Madison Phillips, which appeared originally in the June issue of PHOTO-ERA.

EXHIBITION OF THE SOCIETY OF COLOR-PHOTOGRAPHERS

THIS organization, the only one of its kind in the world, is to be congratulated upon the decided success of its first annual exhibition, which took place at the offices of the *British Journal of Photography* from September 30 to October 26. When the society was formed, less than a year ago, there seemed little prospect that a sufficient number of persons would join to justify a public exhibition; but decided progress in methods of color-photography, together with the initiative of Mr. Henry J. Comley, honorary secretary, his persistent hard work and untiring devotion, have resulted in greatly increased membership and an exhibition of which all concerned may feel justly proud. It is as complete a presentation of current color-processes as one could wish for, and practically all the leading color-workers of England are represented, as well as others in Germany and America. There are paper prints in three-color carbon, pinatype, collotype and other mediums; but as there has been but little improvement in three-color printing-papers of late, although there is plenty of opportunity for it, the greatest interest of the show was centered in the transparencies by the Lumière and Warner-Powrie processes, both of which were much admired.

WHO HONORED LUMIÈRE IN NEW YORK?

WHEN in New York, recently, to gaze upon the glorious possibilities of the Autochrome plate, as revealed by the leaders of the Photo-Secession, we caught a faint whisper to the effect that, soon after his arrival in this country, M. Antoine Lumière, the head of the famous establishment in Lyons, France, was the central figure of a function given in his honor. When or by whom; whether by a body or an individual; whether the function or demonstration was civic, fraternal, scientific or photographic in character — public or private — is a mystery. The most exhaustive search failed to reveal even the slightest justification for the rumor. It is safe to conclude that negligence rather than indifference was to blame for a lost opportunity.

FOURTH AMERICAN SALON

THE opening of the Fourth American Photographic Salon occurred on November 1, at Duquesne Garden, Pittsburg, Penn., under the auspices of the Pen, Pencil and Camera Club. As usual, it will be exhibited in several of the large cities of the United States, Toledo, Ohio, being second on the route-list. The pictures will remain with the Toledo Camera Club from December 2 to 21. An examination of the catalog shows that there are thirty-six prints less this year than last, 230 pictures having been accepted from ninety-four contributors, or an average of about two and one-half to each person. It is also interesting to note that, although seventy workers in the United States contribute about seventy-four per cent of the Salon, two foreign participants have the largest personal collections accepted. Rudolf Dührkoop, of Hamburg, Germany, heads the list with thirteen to his credit, while Giuseppe Castruccio, of Genoa, Italy, is a close second with ten. The largest number of prints accepted from Americans was eight, and this honor went to John Chislett, Wm. H. Phillips and R. L. Sleeth, Jr.

In an early issue of PHOTO-ERA will be reproduced representative specimens from the Fourth Salon, but in the meantime we publish below the full list of contributors and the number of prints accepted from each.

United States

3 Alexander, Geo.
1 Allen, Louis V.
2 Bailey, C. E.
3 Berger, Henry, Jr.
1 Bingham, Miss Katherine
6 Brookins, D. H.
2 Brodhun, Will S.
3 Brown, Edward
1 Buchanan, R. A.
3 Bull, Dr. C. George
1 Buttler, George
1 Chamberlain, Clarence K.
8 Chislett, Jno.
3 Christiansen, C. W.
3 Clarke, C. F.
3 Clime, Winfield Scott
1 Coit, Richard M.
1 Colman, Flora M.
4 Davis, Dwight A.
1 Daniel, J. R.
1 Dapprich, Fred R.
1 Douglass, Benj. W.
1 Edling, Sigurd
7 Eisen, Gustav
1 Ellis, Wm. Shewell
3 Elmberger, Geo. C.
1 Field, Avery E.
5 Fleckenstein, Louis
2 Fountain, E. G.
1 French, Wilfred A.
3 Gates, S. L.
1 Gotham, T. B.
1 Hendrickson, H.
1 Hirsch, Alphonse
4 Holm, Mrs. Sarah
2 Hornor, Stockton
1 Jones, J. F.
1 Kaufmann, R. S.
1 Keller, Lee Hamilton
3 Knox, Wm. T.
1 Langland, B. F.
2 Magee, Ralph W.
2 Minns, H. W.
1 Morris, B. J.
2 Park, Irving K.
3 Parrish, Misses W. & G.
1 Pearce, Mrs. W. W.
8 Phillips, Wm. H.
1 Pickering, C. Ney
2 Pitchford, Miss Emily
2 Reinheimer, Wm. A.
3 Ruggles, J. G.
7 Ryman, Edward F.
2 Scheer, Dr. Geo. H.
8 Sleeth, R. L., Jr.
1 Smith, F. A.
1 Spencer, Clinton J.
2 Thurston, C. O.
3 Townsend, Chas. E.
1 Tracy, Edith H.
1 Tuckernab, F. M.
2 Underhill, James E.
4 Weeks, Robt. E.
3 Weymouth, Josephine Dyer
2 Willard, Mrs. Eleanor W.
4 Wilde, Arthur W.
1 Williams, Fannie
5 Winchester, Dr. Walter H.
1 Wood, Frank G.
2 Zerbe, Wm. H.
6 Zierath, Dr. W. F.

Canada

2 Planche, R. S.

England

1 Aitchison, Miss Gertrude
1 Barton, Mrs. G. A.
3 Blake, A. H.
3 Hensler, W. A. I.
1 Holding, E. T.
2 Huson, Frank E.
4 Judge, Fred
1 Kimber, S. G.
1 Lloyd, Lewis
1 Nithdale, W. H.
2 Smith, Arthur
2 Summons, H. Y.
1 Walburn, A. W.

Germany

13 Dührkoop, Rudolf

India

1 Govindasawmynaidw, M.
1 Joshi, P. S.

Italy

1 Benedetelli, Ing. Lucio
10 Castruccio, Giuseppe
2 Erizzo, Pierluigi
3 Ferrari, Nino
4 Martini, Dr. Cesare

Mexico

3 Ravell, Henry

EXHIBITION OF THE ROYAL PHOTOGRAPHIC SOCIETY

THE fifty-second exhibition of this organization was held in London, England, from September 19 to October 26. As a whole, it was much wider in its interest than in years past, the outcome being that it showed admirably the photographic work of the year in all its branches. In fact it is probable that no more thoroughly catholic or representative collection of photographs was ever shown in England. The pictorial section was as ever of most interest, and showed a distinct advance in quality over previous years, due in no little measure to the excellent contributions from Europe and America, indicating the enviable position the society now holds in the minds of foreign workers. The professional show was fair, although probably the weakest section; the exhibition of reproduction methods interesting; while the scientific department gave eloquent proof of the valuable work being done by photography in natural history, medicine, astronomy and many other branches of science. Two medals have been awarded in this department: one to Messrs. Lumière for the Autochrome plate and another to Professors Lowell and Lampland, of the Flagstaff Observatory, for their wonderful photographs of the planet Mars. The section devoted to color-photography naturally came in for a large share of attention, and the transparencies by the Lumière process were decidedly of chief interest.

THE PHOTOGRAPHIC SALON

THE fifteenth exhibition of the Linked Ring, held at London, England, from September 13 to October 26, has not, we fear, proved so noteworthy as the Royal. The concensus of opinion expressed by the English photographic press, with the exception of Mr. Hinton's magazine, seems to be that the Salon, taken as a whole, was a failure, although it contains quite a number of excellent subjects. Of course, Mr. Hinton being a prominent contributor, we can readily understand the enthusiasm of *The Amateur Photographer*. The broader-minded editors, however, and even the British Links themselves, are free to admit that the Salon is seriously crippled by the absence of American workers such as Steichen, Coburn, Stieglitz, Mrs. Kasebier and Clarence White, as well as many of the leading Continental photographers. The pronounced blank thus caused is one which no amount of eccentricity in decoration can conceal. In fact, the exhibition can hardly be considered as more than a collection of prints by a few English workers.

SHERBROOK CAMERA CLUB

AT the annual meeting of the Sherbrooke Camera Club the following-named officers were elected for the ensuing year: president, A. S. Hobson; vice-president, R. S. Planche; secretary and treasurer, C. E. Whitcher, and assistant secretary, A. R. Moore. The club is in a very flourishing condition, and its membership is steadily on the increase.

BOOK REVIEWS

THE GREAT GALLERIES OF EUROPE — The International Gallery, The Tate Gallery, The Louvre and the Luxembourg Gallery. Illustrated, 16mo, thirty-five cents each. H. W. Caldwell Co., 212 Summer St., Boston.

These handy little books are unique in art-literature, their obvious merits assuring them extended and well-deserved popularity. Designed for picture-lovers, especially those unacquainted with the contents of the famous art-galleries of Europe, these illustrated guides convey in a simple, attractive manner, and in the form of object-lessons, the primary knowledge of the world's masterpieces in art.

Each volume of the series contains sixty sepia half-tone illustrations of the chief works contained in the gallery with which it deals, as well as an historical sketch of that particular art collection, while short notes appear under each picture, embodying facts connected with its history or that of the artist who painted it. There is no reason why every person fond of pictures and desiring quick and accurate knowledge about them should not have the entire set; certainly the price is not to be considered.

ART AND THE CAMERA. By Antony Guest. 8vo, profusely illustrated. Price, $2.00, net. The Macmillan Company, 66 Fifth Ave., New York.

Following closely upon the heels of Mr. Beck's admirable work, to which it forms a fitting companion, comes the achievement by Antony Guest — a book which may justly claim a warm spot in the hearts of photographic readers everywhere, and is destined to occupy a high place in the literature of photography.

Its forty-seven essays are devoted to æsthetic considerations of the art, serving as a source of inspiration to the idealist, while supplementing the technical ability of the professional worker. As critic and guide Mr. Guest presents his views in clear, delightful English, which invests his book with a positive charm. On the important and much-neglected subject of the hands he says: "While on this subject it may be useful to say a word about hands, which inevitably form a valuable addition to a picture, or else a serious detriment. They are most expressive members, but if they are shown in a nerveless, unsuggestive way, they are as likely as not to spoil an otherwise creditable work. Again, if they are forcibly depicted, with all their character displayed, there is always the danger that they will constitute a second point of focus in competition with the head. Truly it is not absolutely necessary that the head should be the most strongly emphasized point, and many good portraits have been made with the face only suggested in a half-light, and the point of focus elsewhere. In such a case the hands, or one of them, might be accentuated very usefully."

WITH THE TRADE

AN IMPORTANT PHOTOGRAPHIC INDUSTRY

In the May issue of PHOTO-ERA appeared an editorial roundly scoring the numerous concerns, responsible and irresponsible, distributed throughout this country, in large cities and in country towns, who make a regular business of developing and printing for amateurs, and make a mess of it. A cotemporary, wrongly interpreting the meaning of our criticism, undertook to lay the blame for the miserable work put forth, on the amateur for tendering for development spoiled films, from which, naturally, no satisfactory results could be expected. That films are spoiled by careless kodakers, as a result of exposure to heat and dampness, is sometimes the case, as we have frequently pointed out; but it is a positive truth that the cause of so much wretched work being turned out by many establishments, large and small, is due to technical inefficiency and unsuitable and inadequate working-facilities. PHOTO-ERA has not hesitated to point out the lack of scrupulous care exercised even by firms who should know better in handling the large quantity of films entrusted to them for development, and that in many instances the disappointed camerist would be warranted in bringing suit for damages — not against the maker of the film, but against the developing-concern. We know of numerous concerns — firms and individuals — employing ignorant, slovenly workmen. and who are otherwise ill-equipped for the responsible business of developing precious photographic records, yet who have the nerve to solicit such work.

Recognizing the rank injustice that has been, and is being, done to a long-suffering class of enthusiastic camerists, and actuated by a sincere desire to improve the wretched methods and conditions that prevail in the average developing- and printing-establishments throughout the country, the Eastman Kodak Company has issued a clear and comprehensive pamphlet, "Developing and Printing for the Amateur," explaining its own methods, as practised in its factory at Rochester, N. Y., where it handles the enormous number of films sent to it from all parts of the world. It is now up to every one who caters to the business of finishing amateur work to forsake old-fashioned ways, that are clumsy and inadequate, in favor of up-to-date methods. that will greatly facilitate the work and produce superior and uniform results, in the minimum time, and still at a moderate price to the patron. The process of developing and printing for the amateur has been reduced by the Eastman Kodak Company to a series of automatic operations, calling into play the latest time- and labor-saving devices in the form of developing-machines, drying-ovens and printing-cabinets, all of which can be operated by persons of ordinary intelligence. The sooner a finisher of amateur exposures adopts this new standard method of handling the work, the sooner can he compete with the Eastman Company in quality, celerity and profit, at the same time earning the gratitude and confidence of his patrons.

There is no reason why the camerist should not complete the work begun with the exposure of the plate or film; for only when he is the author of negative and print can he claim to be an amateur photgrapher in the fullest sense. Indeed, this suggestion has been made by the Eastman Company, as stated in the pamphlet referred to: "Continued simplification and improvement of our products made it a pleasurable possibility for the amateur to 'do the rest' himself, and this we urge upon him, for the better he understands photography, the better purchaser he becomes."

The booklet referred to will be sent by the Eastman Kodak Company, without charge, to any photographer or dealer who is conducting a department for the finishing of amateur work.

THE WYNNE INFALLIBLE EXPOSURE-METER FOR AMERICAN WORKERS

All users, in this country, of Wynne's Infallible Exposure-Meter will be interested to know that the January issue, 1908, of PHOTO-ERA, will contain an article by F. H. Jeffree on the application, in the United States, of this meter, using Eastman's Bromide paper. Mr. Jeffree is the author of "Exposure in Enlargement," which appeared in the September PHOTO-ERA, on the use of the Watkins meter and an English bromide paper.

CASH FOR WATERSCAPES

We have no patience with concerns who offer tempting cash prizes for photographs, putting camerists to a lot of trouble without suitable or any compensation. The publisher of *The Rudder*, however, plainly states what he will do, and may be depended on to carry it out to the letter. His advertisement in this issue tells the whole story.

HOW NOT TO ROLL AN EASTMAN FILM

In order to enable users of film to avoid pitfalls, the Eastman Company recommends that rolls of films be not rolled too tightly before packing after exposure; otherwise they are liable to produce cinch-marks. It is hoped that all users of roll-films will bear this important hint in mind.

CYKO PAPER FOR THE PROFESSIONAL

THIS paper is being brought more and more to the attention of the professional worker, as it seems to fill a long-felt want, enabling him to use a developing-out paper in all his work. Professional Cyko contains more gelatine and the emulsion is richer in silver than the other brands of Cyko, hence is adapted to negatives made specially to suit platinum prints. The manufacturers, the Ansco Company, of Binghamton, N. Y. (successors to the Anthony & Scovill Co.), make a strong point in favor of this new paper when they say that it is only the photographer who makes his negatives to suit platinum paper and exacts as good or better prints from the said negatives on developing-out paper who is interested in Professional Cyko, as no other grade will accomplish that difficult feat. The Professional Cyko emulsion is compounded so as to produce great softness with contrasty negatives without sacrificing brilliancy. Some papers give the impression of softness, but in reality it is flatness — not softness.

A NEW LOW-PRICED ANASTIGMAT

CHEAP, ill-constructed lenses, under the guise of catchy names, are made by the car-load annually. Though offered to dealers and individual photographers at tempting discounts, 25 to 50 per cent, they do not sell. Several makers of such spurious lenses, unable to dispose of their worthless wares, have gone out of business, and their names are hardly a memory. Those that remain are making a desultory struggle for existence; but they, too, will soon fade away.

Of a far different character is the "Isostigmar" lens, made by the Becks of London, England, where it has made great headway against the ten high-grade anastigmats which control the photographic market there. If you want to get acquainted with a high-grade, low-priced anastigmat of genuine merit, made by a reputable firm and sold by a reliable house, try the "Isostigmar." Williams, Brown & Earle, sole American agents, 918 Chestnut Street, Philadelphia, will gladly furnish you with all the necessary particulars.

A GREAT OPTICAL FIRM

THE Bausch & Lomb Optical Co is at work making extensive additions to its already enormous plant. Two years ago a three-story building, 40 x 440 feet, was erected for use of the administration. Manufacturing-needs made it necessary to encroach upon this to such an extent, and still the space proved inadequate, that finally the erection of these new buildings had to be undertaken. Two new stories are being added to the administration building, and north of this site the work is being rapidly pushed on a five-story grinding-plant, 119 x 238. These structures, when completed, will almost double the present floor-space, giving the company about ten acres.

FOCAL-PLANE SHUTTER PHOTOGRAPHY

WITH the universal use of Graflex and other cameras equipped with focal-plane shutters, there has come the need of a reliable, comprehensive and easily-understood book on the subject of high-speed photography.

"Focal-Plane Shutter Photography," a very attractive book, issued by the Folmer & Schwing Division of the Eastman Kodak Company, furnishes a fund of information that is not only essential to the user of a focal-plane shutter, but equally valuable to the every-day photographer who may wish to have clear ideas about depth of focus, depth of field, angle of view and many other seemingly abstruse subjects which are clearly and concisely explained.

The illustrations in themselves constitute a comprehensive lesson in photography, as under each picture (and the book contains many) is sufficient information to enable the photographer to proceed with confidence to make negatives of similar subjects. A number of new, and, heretofore, unpublished tables occupy the last five pages of this valuable book, a copy of which, we are informed, will be mailed to those interested in Focal-Plane Shutter Photography, free upon request, by the Folmer & Schwing Division, Eastman Kodak Co., Rochester, N. Y.

A REAL PORTRAIT-LENS

As photographic authorities — including such experts as C. H. Claudy, Dr. George H. Scheer, Felix Raymer and David J. Cook — are urging the employment of regular portrait-lenses for the highest artistic results in portraiture, for either studio or home use, it is a genuine pleasure to invite the attention of workers generally to the Darlot Portrait-Objective. This standard lens, working at F. 4.5, is a corrected and modified Petzval system. The only inconsistency about this admirable lens is its low price. The American agents are the Robey-French Co., Boston, Mass.

AN ENGLISH FILM

G. GENNERT, of New York, announces that he is the American agent of the Austin Edwards Rollable Film for hand-cameras, and will furnish information regarding its qualities to all who are interested.

PHOTOGRAPHY AND CRIME

IT has long been a well-known fact that photography is of great assistance in the detection of crime, and particularly of forgery. In a recent issue of *Truth* there are some interesting items regarding the celebrated Pigott forgeries. These forgeries were photographed and projected on a screen with a stereopticon, when it became apparent that the words were first traced in pencil and then inked over the pencil-marks. On the screen, blank spaces showed the center of each ink-stroke, caused, no doubt, by the ink running off the greasy pencil-marks.

¶ We have made a noteworthy addition to our famous Tessar Series by the production of the

Bausch & Lomb-Zeiss New Tessar f-4.5

The new Tessar has been designed for extra rapid work, the speed being twice as great as the f-6.3 Tessar, and it brings within easy and sure range the most exacting demands of work requiring great speed.

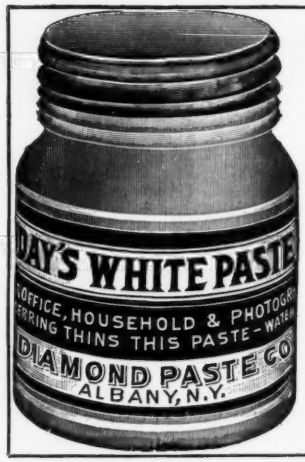
¶ While the aperture has been increased, brilliance, definition and flatness of field have not been sacrificed.

¶ The new Tessar has this speed of f-4.5 in all the numbers of the series up to and including the largest sizes.

¶ We should like to send you our Catalog H which fully describes the new Tessar, as well as our complete series of lenses.

¶ "PRISM" IS A LITTLE MAGAZINE we publish monthly. Not a mere advertisement, but a beautifully made and printed little publication about that world of wonder and beauty seen by the lens. Send us your name and we will enter your subscription FREE.

Bausch & Lomb Optical Company, Rochester, N. Y.
New York Boston Washington Chicago San Francisco



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A thoroughly scientific paste for fine Photography and Artistic work

WILL NOT SPOT because it **IS ABSOLUTELY NEUTRAL**

It will not wrinkle the most delicate paper or curl the mounted pictures, and the particles are so fine that every atom sticks.
It is smooth as a cold cream, and stays in perfect condition till entirely used up.

That is One Reason Why IT IS THE CHEAPEST

Another reason is that you get more of it in a package. Day's half-pint, pint, and quart jars contain full 10, 20, and 40 ounces (not 8, 15, 32 ounces). The 6-lb. and 12-lb. pails give most for the money. 6-lb. pails, $1.00. FREE SAMPLE to amateur or professional.

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DIXON'S AMERICAN GRAPHITE PENCILS
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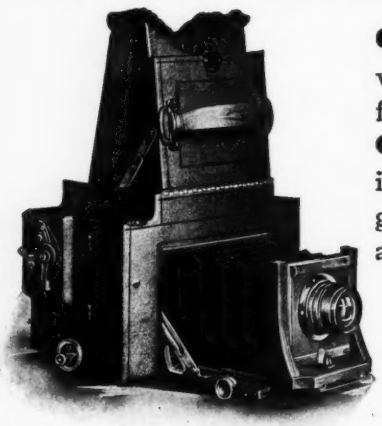
To sell PHOTO-ERA and PHOTO-ERA MAGAZINE CLUBS. A liberal commission for every combination in our clubbing-offer catalog.
PHOTO-ERA, Boston, Mass.

3 A Graflex Camera



¶ A new camera of the reflecting type, which takes standard, daylight-loading roll film, no extra attachments being required.
¶ Like the regular Auto Graflex, the focusing screen shows the object to be photographed full size of plate and right-side up at the instant of exposure.

¶ The Graflex Focal Plane Shutter, which works at any speed from time to $\frac{1}{1000}$ of a second, is also a part of this camera.

¶ The 3 A Graflex loads with regular 3 A Kodak film for photographs 3¼ x 5½.

3 A Graflex with Bausch & Lomb-Zeiss Tessar Lens, $124.00

Catalog at the Dealers or

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A Startling Discovery in Photography

The ISOSTIGMAR LENS

The Product of an Entirely New Idea
3000 Sold the First Three Months in London
Best of all Anastigmats
Increased Efficiency; Cost Reduced 50%

Comparison of Prices { Previous Anastigmats, 4 x 5, $45.00 - $51.00.
Isostigmars - 4 x 5. $17.50 - $22.00.

Isostigmars fit the Kodaks

Lenses sent on 10 days trial on receipt of price or through your dealer.

Price lists of Isostigmars, Enlarging Outfits and Photoscripts for Titling Negatives, sent free.

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Sole American Agents.

ADVERTISE YOUR WANTS
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FORTY CENTS PER LINE

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PATENTED
Saves time, temper and plates. Acknowledged by leading photographers as the most practical device ever invented for taking baby-pictures. For illustrated booklet, write to
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The Wynne "Infallible" Exposure-Meter

THE CHOICE OF AMERICA'S FOREMOST PHOTOGRAPHERS

Sent on approval on receipt of price, $2.50 (*Specify whether you want F System or U. S.*)

AN IDEAL XMAS GIFT

We promise to cheerfully refund your money if, after a fortnight's trial, the meter is not worth more to you that you paid for it.

N.B.—*Thousands have been sold under the above promise and not one has been returned!*

FOR F SYSTEM

Nickel	$2.50
Silver	5.00

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Nickel	$2.50
Silver	5.00

The "Infallible" Shutter Speed-Tester . $1.50 **The "Infallible" Print-Meter . . . $2.50**

Send for our illustrated circular and other interesting printed matter

THE WYNNE INFALLIBLE METER CO., 81 Keap St., BROOKLYN, N. Y.

COOKE LENSES

Series II. Full aperture F/4·5

These ultra-rapid anastigmats are designed for the finest portraiture and for subjects demanding extreme speed. Like other Cooke lenses, they give definition at the margins of the plates equal to that at the centre, and are quite free from that particular streakiness of marginal definition familiar to the professional photographer.

The lenses numbered 22 and 23 are provided with the means for moving the back glass. This device enables the photographer to secure at will uniform sharp definition, or to introduce any required softness evenly throughout the plate. Write for a free catalog.

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ACCEPT NO SUBSTITUTE

For Photo-Engravers

LePage's is recognized everywhere as the only glue to be used in Process-Work.

Sample of Photo-Paste mailed for 10 cents.

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CLEVERLY LINKED.

Number eighty-two of the *Photo Miniature* contains an article on Modern Dark Rooms, from which we excerpt the following:

"It may seem paradoxical to begin a book avowedly devoted to the dark room with a dissertation on the possibility of dispensing altogether with this one time necessity in photography.

"Both films and plates may be changed, developed and fixed in daylight by the use of cleverly devised tanks, so compact and dainty in their construction, that my lady can carry one in her hand bag without perceptibly adding to its weight, or fear of soiling the most delicate lingerie; or the military photographer on the fighting line can sling the tank on his belt with his water bottle and develop his day's exposures at the most convenient mud puddle enroute.

"And, be it noted, these concessions to the great god Convenience have been granted, not at the expense of, but with added efficiency, for they are based on careful research and the elimination of uncertain and haphazard methods.

"Tank Development is not new. The early apparatus, however, was somewhat crude and a dark room of some kind was essential at the beginning and end of development, so that one may fairly say that the advantages of the method were not generally appreciated until the Kodak Company introduced its now well-known tank method for the development of roll films; cleverly linking the advantages of the 'time and temperature' method with the practical convenience of the light-proof tank."

ONLY ONE.

In winter the photographer has more to contend with than during the summer solstice. The light is yellower and slower, tending to longer exposures and the consequential danger of halation.

Under such conditions, to properly record what the lens brings into focus, requires a sensitive medium of unusual qualities. It must be rapid, sensitive in a high degree to the predominating colors and non-halation —and not the least—it must be light and compact so as not to render the trips afield a drudgery instead of a pleasure. Quite a formidable array of demands is it not? Yet every one of these good qualities may be found in one product, and in one only—and that is Eastman N. C. Film.

These multi-qualifications that render Eastman N. C. supreme have not always been a part of that product. They are the result of years and years of experience in film making and film selling. Not only have the theoretical demands of factory chemists been met, but also the demands of the *purchasing public.* These years' of experience form an asset of inestimable value and one that can be duplicated only by a similar number of years under equally favorable conditions.

Every roll of experience film has "Kodak" on the spool end.

PORTRAIT POSSIBILITIES.

The great charm of Kodakery lies in its universal adaptation to every time, place and mood. If the out of doors calls you, what a multiplicity of things invite your selection. On the other hand, if old Boreas is on the rampage and forcibly reminds you that "there is no place like home," home will furnish an equal number of delightful subjects for the ever ready and willing Kodak. There are the cozy corners, quiet library nooks, and even the kitchen will furnish material full of

Eastman Kodak Company

ROCHESTER, N. Y., *The Kodak City.*

pictorial quality and interest. Whatever the environment, the human interest in the home is always the greatest and however much we enjoy making pictures of the home, making pictures of those who make the home always furnishes the greatest pleasure.

FLORENCE. EDITH L. GARITT.
(*Made with Kodak Portrait Attachment.*)

And—one of the greatest charms of home portraiture is its simplicity—simplicity not only of all necessary processes, but of the result, pictures of the loved ones as you know them in familiar dress, attitude and surroundings. Kodak Home Portraiture demands no extra apparatus, except a portrait attachment, just a simple extra lens which slips on in front of the regular lens and costs but fifty cents. Most anything neutral in tone will do for a back ground, and an adequate reflector may be formed with a towel suspended from a chair back.

Kodak Home Portraiture, a little booklet of suggestion containing some splendid examples of Kodak home pictures may be had for the asking from any Kodak dealer or direct from us by mail.

EASTMAN'S FLASH SHEETS

are the safest and most convenient preparation for flash light work.

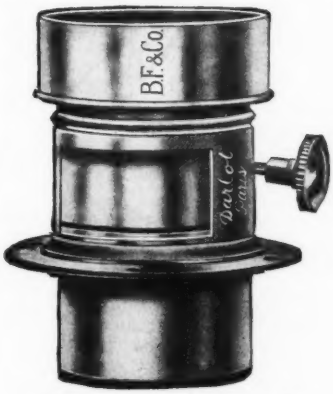
—Pin to a card, touch with a match—much or little illumination as you need—and—when and where you want it.

Eastman's Flash Sheets.

No. 1, per pkge.,	$ .25
Do. No. 2,	.40
Do. No. 3,	.60

All Dealers.

BEFORE BUYING A LENS



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DARLOT'S LENSES

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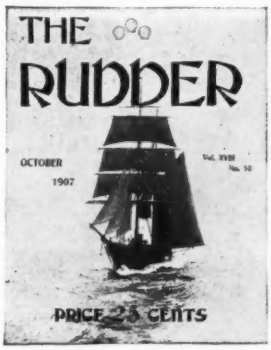

THE RUDDER, the foremost yachting magazine, will pay $2.00 each for acceptable marine studies or yachting photographs, from any part of the world.

Prints should be unmounted, and identified, as to subject and locality, by a line on the back. If not available they will be returned promptly.

If you have any negatives on the subjects named, send prints to THE RUDDER'S *New England representative*

WINFIELD M. THOMPSON, 383 Boylston St., Boston

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with their gorgeous foliage, offer endless opportunities for beautiful pictures, if a plate is used which will correctly register their splendid color-tones. There is no plate so good as the

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for ALL work, out-of-doors, in the studio, or for the commercial photographer. Made in three speeds, Instantaneous, Medium and Slow. Both single and double-coated.

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THE BEST MADE

This illustration shows the "POPULAR," which cuts a sheet of 15 inches or less, and sells for $7.00. Made with curved blade and pivotal spring joint, and cuts a smooth, straight edge. It is guaranteed to do perfectly all the work required of a high-grade trimming-board. We make eight other styles.

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HIGGINS'

Photo-Mounter

have an excellence peculiarly their own. The best results are only produced by the best methods and means—the best results in Photograph, Poster and other mounting can only be obtained by using the best mounting-paste —HIGGINS' PHOTO-MOUNTER (excellent novel brush with each jar). At Dealers in Photo-Supplies, Artists' Materials and Stationery. 3-oz. jar, prepaid by mail, 30 cents.

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The new No. 6 Studio Shutter shown here for "time" or "instantaneous" exposures is **VERY FAST.** It has all mechanism inside, a feature appreciated by all users. **PACKARDS** are made in all sizes and styles. They work **smoothly, easily, quickly** and **without noise or vibration** in opening. It has an **established reputation,** yet is guaranteed to give satisfaction or your money back. Talk, though, is cheap; it's *results that count.*

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